INTERNATIONAL TELECOMMUNICATION UNION

ITU-T

TELECOMMUNICATION
STANDARDIZATION SECTOR
OF ITU

T.134
(02/98)

SERIES T: TERMINALS FOR TELEMATIC SERVICES

Text chat application entity

ITU-T Recommendation T.134

(Previously CCITT Recommendation)

ITU-T T-SERIES RECOMMENDATIONS

TERMINALS FOR TELEMATIC SERVICES

For further details, please refer to ITU-T List of Recommendations.

ITU-T RECOMMENDATION T.134

TEXT CHAT APPLICATION ENTITY

Summary

This Recommendation defines a protocol that supports multipoint text conversation.

The T.134 protocol supports multipoint conversation in text by allowing text entered at one site to be advertised within a session to other sites. It enables simple real time text conversation between terminal users.

The text conversation presentation protocol in Recommendation T.140 is used in the text chatting application.

Recommendation T.134 uses services provided by Recommendations T.122 (MCS) and T.124 (GCC) also in their light profile defined in Annex C/T.120.

The Chat protocol is intended to be possible to combine with other data services as well as with video and audio in audiovisual services.

FOREWORD

ITU (International Telecommunication Union) is the United Nations Specialized Agency in the field of telecommunications. The ITU Telecommunication Standardization Sector (ITU-T) is a permanent organ of the ITU. The 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 Conference (WTSC), which meets every four years, establishes the topics for study by the ITU-T Study Groups which, in their turn, produce Recommendations on these topics.

The approval of Recommendations by the Members of the ITU-T is covered by the procedure laid down in WTSC Resolution No. 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.

INTELLECTUAL PROPERTY RIGHTS

The ITU draws attention to the possibility that the practice or implementation of this Recommendation may involve the use of a claimed Intellectual Property Right. The ITU takes no position concerning the evidence, validity or applicability of claimed Intellectual Property Rights, whether asserted by ITU members or others outside of the Recommendation development process.

As of the date of approval of this Recommendation, the 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.

CONTENTS

Recommendation T.134

TEXT CHAT APPLICATION ENTITY

(Geneva, 1998)

1   Scope

This Recommendation defines a protocol that supports multipoint text conversation, commonly known as chatting. It uses services provided by Recommendations T.122 (MCS) and T.124 (GCC) also in their light profile specified by Annex C/T.120.

Figure 1 presents an overview of the scope of this Recommendation and its relationship to the other elements of the T.120 framework within a single node.
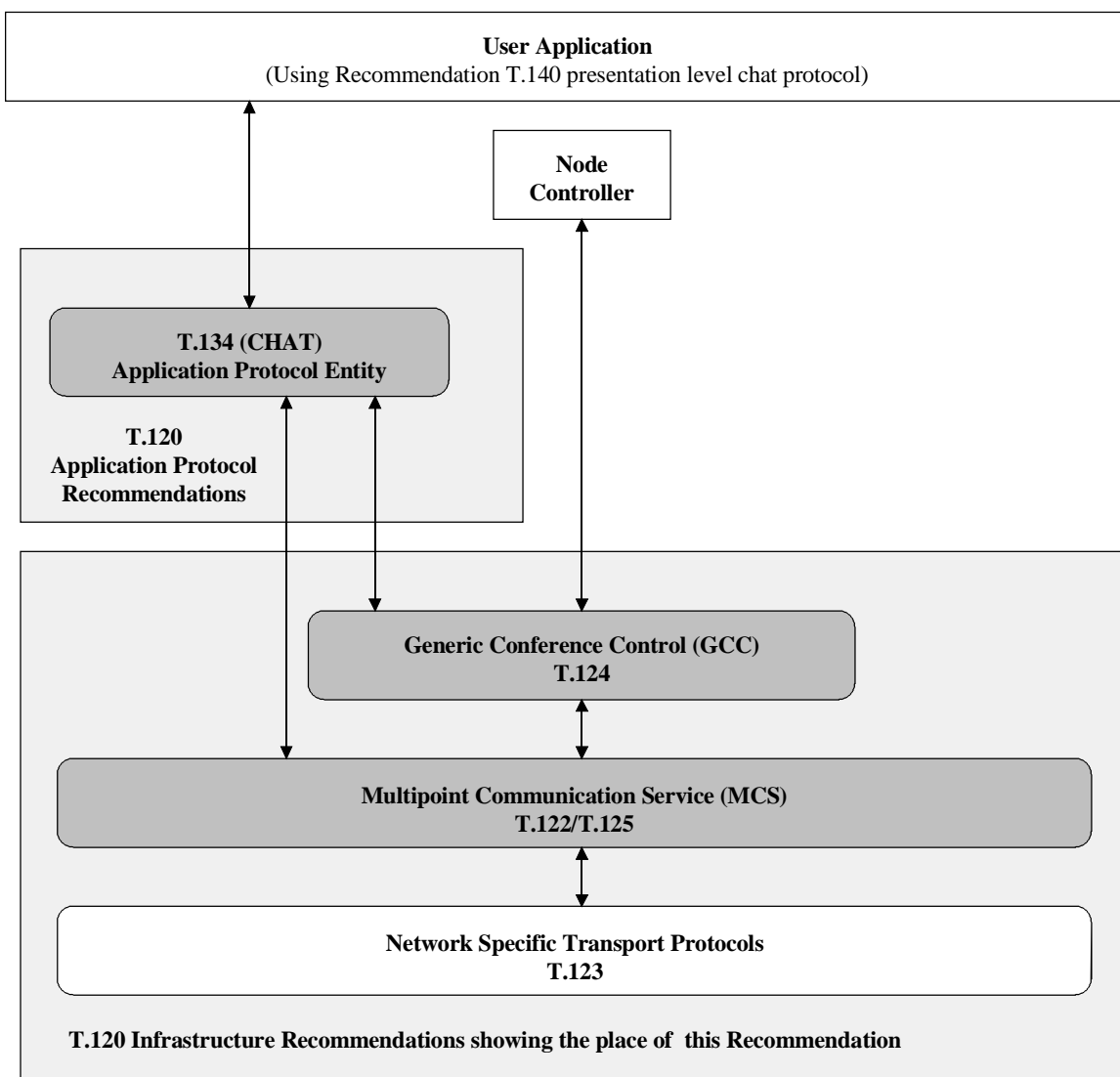
T1604150-97

Figure 1/T.134 – Scope of this Recommendation

2 Normative references

The following ITU 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; all 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.

– ITU-T Recommendation F.710 (1991), *General principles for audiographic conference service.*

– ITU-T Recommendation T.120 (1996), *Data protocols for multimedia conferencing.*

– ITU-T Recommendation T.121 (1996), *Generic application template.*

– ITU-T Recommendation T.122 (1993), *Multipoint communication service for audiographics and audiovisual conferencing service definition.*

– ITU-T Recommendation T.123 (1996), *Network specific data protocol stacks for multimedia conferencing.*

– ITU-T Recommendation T.124 (1995), *Generic Conference Control.*

– ITU-T Recommendation T.125 (1994), *Multipoint communication service protocol specification.*

– ITU-T Recommendation T.140 (1998), *Text conversation protocol for multimedia application.*

– ITU-T Recommendation X.680 (1997) | ISO/IEC 8824-1:1998, *Information technology – Abstract Syntax Notation One (ASN.1) – Specification of basic notation.*

– ITU-T Recommendation X.691 (1997) | ISO/IEC 8825-2:1998, *Information technology – ASN.1 encoding rules – Specification of Packed Encoding Rules (PER).*

– ISO/IEC 10646-1:1993 (including Amendments 1996), *Information technology – Universal Multiple-Octet Coded Character Set (USC) – Part 1: Architecture and Basic Multilingual Plane.*

3 Definitions

This Recommendation defines the following terms:

3.1 Text Chat (CHAT): A process that enables text entered on one terminal to be displayed at once to the user on that terminal and on one or more other terminals participating in a chat session.

3.2 Chat Protocol Entity (CHATE): An Application Protocol Entity that interacts with a user application above and with the local MCS (Multipoint Communication Service) and local GCC (Generic Conference Control) providers below to implement application sharing. Data is exchanged between peer CHATEs using CHATPDUs (Chat Protocol Data Units).

3.3 handle: A CHAT session-wide unique number used to identify an addressable item.

3.4 standard capability: The capability is defined within the scope of this Recommendation but is not required for all CHATE implementations. Note that all standard capabilities must be negotiated before use.

3.5 unicode: Text string format with multilingual capabilities as defined in ISO/IEC 10646-1.

3.6   window: A rectangular area on the terminal display corresponding to a user interface display area managed by the terminal window manager.

3.7   Chat Channel (CHAT-CHANNEL): A T.120 channel dedicated for use by the text conversation protocol.

4   Abbreviations

This Recommendation uses the following abbreviations:

CHATE	Text Chat Protocol Entity
CHATPDU	Chat Protocol Data Unit
GCC	Generic Conference Control
IEC	International Electrotechnical Commission
ISO	International Organization for Standardization
ITU	International Telecommunication Union
MCS	Multipoint Communication Service

5   Overview

The CHAT protocol enables multipoint text conversation in real time by allowing text entered at one site to be displayed within a session at other sites. Each site can enter text in the session. Exchange of text is maintained on a character-by-character or close to character-by-character basis in order to give the session participants an opportunity to exercise a natural conversation in text. The text and control exchange is done according to Recommendation T.140.

A CHAT session consists of one or more CHATE entities which cooperate via the CHAT protocol to distribute entered text within the session. The CHAT protocol defines interactions between CHATEs. It does not define interactions between a CHATE and the operating system or input and output devices on the local terminal.

5.1   CHAT concepts

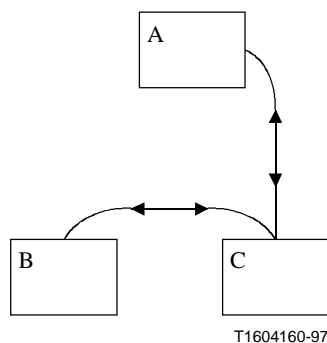Figure 2 shows an example collection of CHATEs within a CHAT session.

T1604160-97

Figure 2/T.134

• 	CHATE A and B both enters text into the CHAT session and displays text received from other CHATEs.

•   The MCS provider in the mode with CHATE C acts as an MCU, distributing the CHATPDUs among the CHATEs.

5.1.1   Text and control

When text is entered or a control action taken, then the CHATE constructs a suitable chat entry for the other CHATEs.

The CHAT chat entry consists of interleaved text entries and presentation control actions as specified in Recommendation T.140.

6   Use of MCS

All T.134 communication shall be through MCS as specified in Recommendation T.122 and keeping within the subset defined by Annex C/T.120. This clause details specific use of MCS services, channel allocation and data priorities. This Recommendation complies with the mechanisms described in Recommendation T.121 regarding proper operations for standard base sessions, and the registration session.

A CHATE uses the MCS service primitives described in Table 6-1 to attach and detach from a domain, join and leave the CHAT channel, and send and receive CHATPDUs.

Table 6-1/T.134 – MCS primitives needed by a CHATE

MCS primitive	Description
MCS-ATTACH-USER	Creates an MCS attachment through an MCS SAP to a domain hosted by the MCS provider. A result is confirmed to the requester. If the request is accepted, a user ID is assigned.
MCS-DETACH-USER	Deletes an MCS attachment that was created previously by invocation of MCS-ATTACH-USER. This primitive may be requested by a user or initiated by a provider. It delivers an indication at every other MCS attachment to the same domain. If provider initiated, an indication is also delivered at the deleted attachment.
MCS-CHANNEL-JOIN	Used by an application client to join an appropriate channel whose use is defined by the application. This is a prerequisite for receiving data sent to the channel.
MCS-CHANNEL-LEAVE	Used by an application client to leave a previously joined channel and thus stop receiving data sent to that channel. The primitive may be user initiated (request only) or provider initiated (indication to affected user only).
MCS-UNIFORM-SEND-DATA	Used to transmit data to other members of a domain. If the sender is a member of the destination channel, it will not receive its own data indications. However, it will receive data indications from other sources addressed to that channel.

MCS request primitives are directed from the CHATE to the MCS provider, while indication primitives are directed from the MCS provider towards the CHATE. Additional detail on the MCS primitives described above can be found in Recommendation T.122 (Multipoint communication service for audiographics and audiovisual conferencing service definition).

6.1 MCS channel usage

Table 6-2 describes MCS channel usage for CHATE sessions of the types defined in Recommendation T.121. In the case of a Standard Base Session (see Recommendation T.121) which uses the CHAT protocol, the Channel IDs shown in Table 6-2 shall be used (symbolic IDs shown). For all other session types, the Application Registry Resource IDs shown in the table shall be used for allocating dynamic channels. The given Resource IDs shall be encoded as three-octet T.50 text strings using the characters shown in quotes in Table 6-2.

Table 6-2/T.134 – Description of CHAT channels

Mnemonic	Channel IDs for Static Channel	Application Registry Resource IDs for Dynamic Channels	Description
CHAT-CHANNEL	CHAT-CHANNEL-0	"T140" (to be defined)	This channel bears all CHATPDUs to be broadcast to all peer CHATEs in a domain.

6.2 Use of MCS data services

Table 6-3 lists the use of the MCS data service MCS-UNIFORM-SEND-DATA for the CHATPDU. This table includes the channel over which the data is sent and the data priority at which the data is sent.

• The CHAT protocol uses only the Medium MCS priority.

The CHATPDUs specified in this Recommendation are placed in the Data parameter of the MCS-UNIFORM-SEND-DATA primitive. The CHATPDUs are packed into the sequence of octets that form the Data parameter such that the leading bit is placed in the most significant bit of each octet, and filled toward the least significant bit of the octet.

Table 6-3/T.134 – Use of MCS data primitives for CHATPDUs

CHATPDU	Channel	Priority
ChatentryPDU	CHAT-CHANNEL	Medium

7 Use of GCC

The CHAT protocol may use the procedures defined for a Registration Session and a Standard Base Session in the manner specified in Recommendation T.121 and shall use as its Application Protocol Key the Object Identifier defined in Annex B.

All CHATEs compliant with this Recommendation shall first enrol actively or inactively in the Registration Session using the procedures defined in Recommendation T.121 and shall stay enrolled for as long as support for the CHAT protocol is to be indicated.

CHATEs may enrol in a Public Session or Private Session at their discretion using the procedures defined in Recommendation T.121.

When a session is in conducted mode, a CHATE may be restricted from sending data, depending on the GCC conducted-mode permission mechanism. If the node is given GCC conducted-mode permission, then a CHATE may send any type of ChatPDU. If the node is not given GCC conducted-mode permission, then a CHATE shall not send any type of ChatPDU.

8   Protocol specification

8.1   CHAT sessions

A CHAT session consists of one or more CHATEs enrolled within a conference as described in clause 7. CHATEs may join or leave the CHAT session at any time.

8.2   Capabilities

There are no capabilities to negotiate for this protocol.

8.3   CHATPDU formats

The CHATPDUs contain data from the T.140 protocol.

One CHATPDU can contain one or more entries of text and control items from the T.140 protocol.

Table 8-1/T.134 – ChatData

Parameter	Description
ChatString	One or more text and control items from the T.140 protocol

A ChatPDU can contain non-standard information using the chatNonStandardPDU choice. This uses the H221NonStandardIdentifier to allow an implementation to use non-standard information without conflicting with any other implementation's non-standard information. If a terminal receives a ChatNonStandardPDU it doesn't understand, it shall ignore the PDU.

8.4   CHATE activation

In the CHAT protocol, CHATE activation shall be performed according to Recommendation T.121.

A CHATE shall use the last roster instance number supplied by a GCC-APPLICATION-ROSTER-REPORT indication on the Standard Base Session that contains both itself and other CHATEs enrolled active.

8.5   Response to long delays or high loads

If long delays are experienced or other high load indications, one reason can be that the total volume of CHAT data transmission in a large conference is high. For such cases, a CHATE may process CHAT data such that the volume of the transmission is reduced by buffering text for a longer period than normally done (reduces mean protocol overhead). The buffering timer is a local configuration value that should not exceed the limit documented in Appendix I. A value of zero indicates that no buffering is applied. In low bandwidth applications it may be accepted to configure constantly for the maximum buffering delay.

8.6   Text and presentation control entry

The application enters text and presentation control elements according to Recommendation T.140 to CHATE for distribution.

The entry should be inserted in a ChatentryPDU. If no buffering timer is specified, each entry from the application is sent with a ChatentryPDU.

If a buffering timer is specified, entries are stored sequentially in one ChatentryPDU and sending initiated after the buffer timer has expired. The buffering timer is started when the first entry is stored in the ChatentryPDU.

The buffering timer is a local constant within the CHATE. See Appendix I.

8.7 Text and presentation control reception

On reception of a ChatentryPDU, the CHATE extracts its text and presentation control elements and other parameters and submits it to the application for action (commonly as specified in Recommendation T.140).

9 CHATPDU definitions

The structure of CHATPDUs for the CHAT protocol are specified as follows using the notation ASN.1 of Recommendation X.680.

The CHATPDUs shall be encoded and placed in the data field of MCS-UNIFORM-SEND-DATA primitives, with the bit string generated by the encoding placed in the GENERAL STRING used by MCS in the order such that for each octet, the leading bit is placed in the most significant bit position and the trailing bit is placed in the least significant bit position.

9.1 ASN.1 definition

```
--||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
--||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
--
--                   Begin CHAT Definitions
--
-- The following base mode ASN.1 definitions are encoded using the BASIC
-- ALIGNED variant of the Packed Encoding Rules of ITU-T Recommendation
-- X.691.
--
--||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
--||||||||||||||||||||||||||||||||||||||||||||||||||||||||||||
```

CHAT-PROTOCOL DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

```
-- NOTE: ============================================================
-- NOTE: All abstract types defined shall be exported
-- NOTE: ============================================================

-- H221NonStandardIdentifer
  -- Used to specify non-standard objects using H.221 numbering.
  -- The first four octets shall designate country code and
  -- manufacturer code, assigned as specified in
  -- Annex A/H.221 for NS-cap and NS-comm.
```
H221NonStandardIdentifier ::= OCTET STRING (SIZE (4..255))

Key ::= CHOICE   -- Identifier of a standard or non-standard object
{
  object   OBJECT IDENTIFIER,
  h221NonStandard   H221NonStandardIdentifier
}

-- *NonStandardParameter*
   -- *Used to specify non-standard parameters. This includes a*
   -- *data field which may be used to fill in parameter values*
   -- *of the type indicated by the NonStandardIdentifier*

NonStandardParameter ::= SEQUENCE
{
  key   **Key,**
  value   **OCTET STRING OPTIONAL**
}

ChatString ::= GeneralString (SIZE (0..255)) -- *Chat Protocol String*

--||||||||||||||||||||||||||||||||||||||||||||||||||||||||
--||||||||||||||||||||||||||||||||||||||||||||||||||||||||
--
--   *Begin CHATPDU Definitions*
--
--||||||||||||||||||||||||||||||||||||||||||||||||||||||||
--||||||||||||||||||||||||||||||||||||||||||||||||||||||||
ChatentryPDU ::= SEQUENCE
{
  chatString   **ChatString,**
  ...
}

ChatNonStandardPDU ::= SEQUENCE
{
  nonStandardTransaction   **NonStandardParameter,**
  ...
}

ChatPDU   ::= CHOICE
{
  chatentryPDU   **ChatentryPDU,**
  chatNonStandardPDU   **ChatNonStandardPDU,**
  ...
}

--||||||||||||||||||||||||||||||||||||||||||||||||||||||||
--||||||||||||||||||||||||||||||||||||||||||||||||||||||||
--
--   *End CHAT Definitions*
--
--||||||||||||||||||||||||||||||||||||||||||||||||||||||||
--||||||||||||||||||||||||||||||||||||||||||||||||||||||||

END

ANNEX A

Static channel ID assignments

Table A.1 lists the numerical assignment of static channel IDs for the static channels allocated for use by this Recommendation. The numerical assignment of static channel IDs is intended to be centralized in Recommendation T.120, but is included here until T.120 is completed.

Table A.1/T.134 – Static channel ID assignments

Symbolic Name	Channel ID
CHAT-CHANNEL-0	12

ANNEX B

Object Identifier assignments

Table B.1 lists the assignment of Object Identifiers defined for use by this Recommendation.

Table B.1/T.134

Object Identifier Value	Description
{itu-t recommendation t 134 version (0) 1}	This Object Identifier is used to indicate the version of this Recommendation.

APPENDIX I

Informative values

This appendix provides suggested values for various values described within the main body of this Recommendation, based on experience with application sharing on a number of terminal types. These values are not mandatory and the actual values used by a specific CHATE are left to the discretion of the implementer.

Maximum buffering timer

The maximum time a character should stay buffered before transmission should be kept low in order to let the users perceive the flow of the text without disturbing delays. However, buffering can save bandwidth by decreasing mean protocol overhead per transmitted character.

A maximum buffering timer of 500 ms is recommended.

ITU-T RECOMMENDATIONS SERIES

Series A   Organization of the work of the ITU-T

Series B   Means of expression: definitions, symbols, classification

Series C   General telecommunication statistics

Series D   General tariff principles

Series E   Overall network operation, telephone service, service operation and human factors

Series F   Non-telephone telecommunication services

Series G   Transmission systems and media, digital systems and networks

Series H   Audiovisual and multimedia systems

Series I   Integrated services digital network

Series J   Transmission of television, sound programme and other multimedia signals

Series K   Protection against interference

Series L   Construction, installation and protection of cables and other elements of outside plant

Series M   TMN and network maintenance: international transmission systems, telephone circuits, telegraphy, facsimile and leased circuits

Series N   Maintenance: international sound programme and television transmission circuits

Series O   Specifications of measuring equipment

Series P   Telephone transmission quality, telephone installations, local line networks

Series Q   Switching and signalling

Series R   Telegraph transmission

Series S   Telegraph services terminal equipment

Series T   Terminals for telematic services

Series U   Telegraph switching

Series V   Data communication over the telephone network

Series X   Data networks and open system communications

Series Y   Global information infrastructure

Series Z   Programming languages