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SERIES F: NON-TELEPHONE TELECOMMUNICATION
SERVICES

Accessibility and human factors

Multimedia telecommunication relay services

Recommendation ITU-T F.930



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ITU-T F-SERIES RECOMMENDATIONS
NON-TELEPHONE TELECOMMUNICATION SERVICES

TELEGRAPH SERVICE	
Operating methods for the international public telegram service	F.1–F.19
The gentex network	F.20–F.29
Message switching	F.30–F.39
The international telemessage service	F.40–F.58
The international telex service	F.59–F.89
Statistics and publications on international telegraph services	F.90–F.99
Scheduled and leased communication services	F.100–F.104
Phototelegraph service	F.105–F.109
MOBILE SERVICE	
Mobile services and multideestination satellite services	F.110–F.159
TELEMATIC SERVICES	
Public facsimile service	F.160–F.199
Teletex service	F.200–F.299
Videotex service	F.300–F.349
General provisions for telematic services	F.350–F.399
MESSAGE HANDLING SERVICES	
DIRECTORY SERVICES	
DOCUMENT COMMUNICATION	
Document communication	F.550–F.579
Programming communication interfaces	F.580–F.599
DATA TRANSMISSION SERVICES	
MULTIMEDIA SERVICES	
ISDN SERVICES	
UNIVERSAL PERSONAL TELECOMMUNICATION	
ACCESSIBILITY AND HUMAN FACTORS	F.900–F.999

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

Recommendation ITU-T F.930

Multimedia telecommunication relay services

Summary

Recommendation ITU-T F.930 provides a functional description of four common types of relay services in use today: text relay, video relay, captioned telephone service relay and speech-to-speech relay. Additionally, it lays out specific functional requirements of relay services pertaining to equipment, call set-up, call experience, emergency communications and message retrieval.

Telecommunications relay services enable persons who have hearing or speech disabilities and who otherwise would be unable to engage in voice telecommunications, to make voice telephone calls to other persons. In all forms of relay services, persons with disabilities connect to a communication assistant via a communications medium that is accessible to them. The communication assistant acts as an intermediary in the telephone call and converts between the accessible communication medium and voice, which is relayed from and to the person on the other end of the call.

History

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* To access the Recommendation, type the URL <http://handle.itu.int/> in the address field of your web browser, followed by the Recommendation's unique ID. For example, <http://handle.itu.int/11.1002/1000/11830-en>.

FOREWORD

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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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Table of Contents

	Page
1 Scope.....	1
2 References.....	1
3 Definitions	1
3.1 Terms defined elsewhere	1
3.2 Terms defined in this Recommendation.....	2
4 Abbreviations and acronyms	3
5 Conventions	4
6 Introduction to telecommunication relay services	4
6.1 General	4
6.2 Functional equivalency.....	7
6.3 Components of relay services.....	7
6.4 Consideration on international interworking/interoperability for relay services	7
7 Four major types of relay services	7
7.1 Text relay (text-to-speech relay)	7
7.2 Video relay (video-to-speech relay)	9
7.3 Captioned telephony relay service.....	10
7.4 Speech-to-speech relay	11
8 Service requirements	12
8.1 End user equipment	12
8.2 Call set-up, modification and tear down procedures	12
8.3 Communication assistant.....	12
8.4 Point-to-point calling.....	13
8.5 Speed of answer.....	13
8.6 Emergency call handling	13
8.7 Message service, storage, indication and retrieval	14
8.8 Key performance indicators	14
9 Service confidentiality and security.....	14
Appendix I – Use of IPTV for telephone relay service.....	15
Appendix II – Real-time text in the United States	17
Appendix III – Procedures for training of communication assistants.....	18
III.1 Initial training	18
III.2 Instructional methods	18
III.3 Training topics.....	19
III.4 Alternate language training topics.....	20
III.5 Training class.....	20
III.6 Training transition and graduation	20

	Page
Appendix IV – Procedures for message retrieval	21
Bibliography.....	22

Recommendation ITU-T F.930

Multimedia telecommunication relay services

1 Scope

This Recommendation introduces telecommunications relay services (simply referred to as relay services). It also defines the reference model, requirements and functionality that facilitate, via an assistive intermediary (i.e., communication assistant, sign language interpreter or lipspeaker), communications between persons who have hearing or speech disabilities with hearing/speaking users over the voice telephony service in a functionally equivalent manner. The aim of this Recommendation is to enable multiple providers, even in different countries, to interwork with one another and allow all users to enjoy the same or similar experience.

NOTE – Technical, regulatory and financial aspects vary from country to country. The Recommendation may include the statement such that there is no extra cost for persons both with and without disabilities to ensure functional equivalency. This edition of this Recommendation provides some of these aspects as initial consideration, e.g., framework and functionality that will impact the user experience globally. These aspects including global interoperability will be covered by further editions of this Recommendation.

It is recommended to follow the requirements and mechanisms described in this Recommendation when the relay services are supported.

It is also emphasized that the relay service is not solely about the media conversion but also includes call handling procedures (alerting, three-way call, and communication-assistant-leg release) and other emulation of user experiences in a functionally equivalent manner. Charging, protection against fraud and confidentiality of communication assistant are also relevant.

2 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.

[ITU-T F.703] Recommendation ITU-T F.703 (2000), *Multimedia conversational services*.

[ITU-T F.745] Recommendation ITU-T F.745 (2016), *Functional requirements for network-based speech-to-speech translation services*.

[ITU-T H.625] Recommendation ITU-T H.625 (2017), *Architecture for network-based speech-to-speech translation services*.

3 Definitions

3.1 Terms defined elsewhere

This Recommendation uses the following terms defined elsewhere:

3.1.1 impairment [b-ITU-T F.791]: Any loss or abnormality of psychological, physiological, or anatomical structure or function.

3.1.2 lip-reading and lip-reading interpretation [b-ITU-T F.791]: A form of communication and interpretation used by persons who are hard of hearing or persons who are deaf who may or may not use sign language.

3.1.3 lip speaking or oral interpreters [b-ITU-T F.791]: The technique of interpretation for persons who are deaf and hard of hearing, where a trained interpreter speaks silently the dialogue in the audio visual content or in any other event in real time, so that the speech is clearly discernible for persons with hearing disabilities who can lip-read the words from the interpreter's mouth without the use of sign language.

3.1.4 persons with disabilities (PWDs) [b-ITU-T F.791]: The correct way to refer to a person with a disability [b-UNCRPD].

3.1.5 profile settings [b-ITU-T F.791]: This is the ability for the users to store and retrieve multiple profiles containing sets of user interface preference settings without having to reset them each time, including accessibility settings.

3.1.6 real time [b-ITU-T F.791]: Data or services (e.g., broadcasting) that are transmitted with virtually no delay.

3.1.7 relay service [b-ITU-T F.791]: Is a telephone service that enables a person who is deaf or hard of hearing or whose speech is not clearly understood, or who prefers to use sign language, to place and receive telephone calls in real time.

3.1.8 specific needs [b-ITU-T F.791]: This replaces the use of the term 'special needs'. This term refers to a wide range of categories including women, children, youth, indigenous people, older persons with age related disabilities, persons with illiteracy, as well as persons with disabilities [b-ITU PP Res.175], [b-WTDC Res.58], [b-WTDC AP]. See also clause 6.39 [of ITU-T F.791].

3.1.9 text telephone: [b-ITU-T V.18]: A device incorporating text telephony functions.

3.1.10 total conversation service [ITU-T F.703]: An audiovisual conversation service providing bidirectional symmetric real-time transfer of motion video, text and voice between users in two or more locations.

3.2 Terms defined in this Recommendation

This Recommendation defines the following terms:

3.2.1 captioned telephony relay service (CTRS): A telecommunications relay service that allows communication by individuals whose voice is understood by the other user but who cannot hear the response accurately or hear at all. In the captioned telephony relay service (CTRS), the communication assistant (CA) transcribes, in real-time, the speech of the other user word for word into text without interpretation so that it can be read on visual or tactile displays.

NOTE – This service can be used by persons who are unable to type or do not have a keyboard on their equipment and the text can be displayed on a device that does not have a keyboard.

3.2.2 communication assistant (CA): A person working in a relay service with media conversation, as a human intermediary, including sign language interpreters for video relay service.

NOTE – In some forms of relay services, the CA does not play the role of an intermediary and is completely transparent to the non-persons with disabilities (PWD). For example, in captioned telephony relay services, the CA only provides the text transcription to the PWD, and the non-PWD is unaware of it.

3.2.3 disability: An evolving concept, which refers to the interaction between persons with impairments and attitudinal and environmental barriers that hinders their full and effective participation in society on an equal basis with others.

3.2.4 functional equivalency: The capability to which persons with different range of abilities (in particular persons with disabilities and persons with specific needs) are able to use a communication service or system with a level of offered functions and convenience-of-use that is similar to those offered to the wider group of users in a population.

NOTE – These include both technical and economic considerations and that no financial discrimination is imposed on relay service users.

3.2.5 hearing carry-over (HCO): A feature offered by relay services, where the audio of the speaking user is directly transmitted to the other user (who can hear either all or part of the spoken speech).

NOTE – In some forms the communication assistant (CA) does not relay the audio into another communication medium, while in others the CA does, and the persons with disabilities (PWD) has the option of switching between listening and using the alternate communication medium.

3.2.6 sign language: A natural language that, instead of relying on acoustically conveyed sound patterns, uses signs made by moving the hands combined with facial expressions and postures of the body to convey meaning. It is also called signed language or simply visual signing.

3.2.7 speech-to-speech relay: A telecommunications relay service that allows communication by individuals with speech disabilities with voice telephone users through the use of specially trained communication assistants (CAs) who understand the speech patterns of persons with speech disabilities and can repeat the words spoken by that person.

NOTE – When the person with disability can type, he or she can use text-to-speech relay.

3.2.8 telecommunications relay service: Synonymous with relay service as defined in [b-ITU-T F.791].

3.2.9 text relay (or text-to-speech relay): A telecommunications relay service that allows communication by individuals with speech and hearing disabilities. Text is converted by a Communication Assistant into verbal information over a voice telecommunication service.

3.2.10 video relay (or video-to-speech relay): A telecommunications relay service that allows communication by individuals with speech and hearing disabilities. Visual information is converted by a communication assistant (CA) to verbal information over a voice telecommunication service.

NOTE – Video relay allows persons with hearing or speech disabilities who use sign language to communicate with voice telephone users through video equipment. The video link allows the CA to view and interpret the party's signed conversation (or visual communication) and relay the conversation back and forth with a voice caller.

3.2.11 voice carry-over (VCO): A feature offered by relay services, where the persons with disabilities (PWD) speaks directly to the other end user. The audio of the PWD is directly transmitted to the other end. In some forms of voice carry-over (VCO) the PWD has the option of switching between speaking and having the communication assistant (CA) speak.

4 Abbreviations and acronyms

This Recommendation uses the following abbreviations and acronyms:

CA	Communication Assistant
CTRS	Captioned Telephony Relay Service
HCO	Hearing Carry-Over
HoH	Hard of Hearing
HTTP	Hypertext Transfer Protocol
IMS	IP Multimedia Subsystem
KPI	Key Performance Indicator
MoC	Mode of Communication
PSTN	Public Switched Telephone Network (fixed and mobile)
PWD	Persons With Disabilities
RTT	Real-Time Text

STS	Speech-to-Speech
TRS	Telecommunication Relay Service
TTY	Text Telephone
VCO	Voice Carry-Over
VoIP	Voice over IP
VRS	Video Relay Service

5 Conventions

None.

6 Introduction to telecommunication relay services

This clause provides a general overview of relay services and introduces key concepts.

6.1 General

Persons with hearing disabilities (deaf or hard of hearing (HoH)) and/or speech disabilities have difficulties with the use of traditional telephone services, which highly rely on voice.

Relay services are the telecommunication services which allow persons with hearing disabilities (deaf or HoH) and/or speech disabilities to communicate more easily with hearing and speaking users by converting a medium (e.g., voice) to another medium which can appeal to other senses of persons with disabilities.

The user with the disability has a terminal that provides an accessible communications medium, such as video or text. A communications assistant (CA) at the relay centre converts the text or signs, generated by the persons with disabilities, to voice for the hearing person. In the reverse direction, the CA converts the voice, from the speaking person, to the accessible communications medium for the user with a disability (e.g., a person who is deaf, HoH or has a speech disability). This scenario is shown in Figure 1. Users with speaking and/or hearing disabilities are shown as persons with disabilities (PWD) on the left side of this figure. Speaking and hearing users are shown as persons with no-disabilities (non-PWD) on the right side of this figure. Information exchanged is characterized by two levels: mode of communication (MoC) and medium. Mode of communication represents the direct interaction with a person regardless of the existence of networks. Medium is a transmission type supported by networks. Usually, the CA converts or augments the MoC and uses a medium suitable for the converted MoC. Table 1 contains some examples of applicable mediums and modes of communication.

NOTE 1 – Some relay services can be used between PWDs.

NOTE 2 – Multiple CAs are traversed when multiple different conversions are necessary.