



INTERNATIONAL TELECOMMUNICATION UNION

ITU-T

TELECOMMUNICATION
STANDARDIZATION SECTOR
OF ITU

F.852

(03/2000)

SERIES F: NON-TELEPHONE TELECOMMUNICATION
SERVICES

Universal personal telecommunication

Universal personal telecommunication (UPT) – Service description (service set 2)

ITU-T Recommendation F.852

(Formerly CCITT Recommendation)

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Document ID: ITU-T F.852 2000

ITU-T RECOMMENDATION F.852

UNIVERSAL PERSONAL TELECOMMUNICATION (UPT) – SERVICE DESCRIPTION (SERVICE SET 2)

Summary

This Recommendation "Universal Personal Telecommunication (UPT) – Service Description (Service Set 2)" provides the service description and operational provisions for Universal Personal Telecommunication (UPT) – Basic UPT service scenario.

It describes the main principles of UPT, for example personal mobility, authentication and service profile management. It defines the UPT service aspects from the user's perspective (e.g. numbering and charging aspects). It also describes the essential features necessary to provide the UPT service, and the optional features, which may be used to support additional enhancements.

UPT Service Set 1 was a restricted scenario providing UPT service that supported provision of telephone service over PSTN, ISDN and PLMN networks. UPT Service Set 1 is incorporated in this Recommendation for UPT Service Set 2.

UPT Service Set 2 – The Basic UPT service scenario – incorporates more services and networks, moving towards full universal service availability, terminal independence and operation across multiple networks. In this scenario, for example, various data services may be provided in addition to telephone service as in Service Set 1.

Source

ITU-T Recommendation F.852 was prepared by ITU-T Study Group 2 (1997-2000) and was approved under the WTSC Resolution No. 1 procedure on 13 March 2000.

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.

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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.

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Recommendation F.852

UNIVERSAL PERSONAL TELECOMMUNICATION (UPT) – SERVICE DESCRIPTION (SERVICE SET 2)

(Geneva, 2000)

1 Scope

This Recommendation is intended to provide the service description and operational provisions for Universal Personal Telecommunication (UPT).

Following the principles laid down in Recommendation F.850, "Principles of UPT" and in Recommendation F.851 "Universal Personal Telecommunication (UPT) Service Description (Service Set 1)", this Recommendation provides the general service description (service description Service Set 2) from the point of view of the individual UPT subscriber or UPT user. It does not consider network implementation or regulatory issues.

F.851 was a restricted short-term UPT service scenario. Only the telephone service over PSTN, ISDN and PLMN was supported in this scenario.

F.852 defines the basic service scenario. It incorporates more services and networks, moving towards full universal service availability, terminal independence and operation across multiple networks. In this scenario for example various data services may be provided.

For the purpose of this Recommendation, the term UPT Service(s) describes the offering of a combination of network capabilities together with the appropriate user-network interface facilities which enable each UPT user to participate in a user-defined set of subscribed services. This offering may vary according to the scope of such capabilities that the service provider may wish to offer.

Definitions given in Recommendation F.851 are duplicated in Recommendation F.852.

1.1 General description

UPT introduces the concept of UPT number. In fixed telecommunication networks, a user or subscriber is associated with the network access point of the terminal, the point of attachment of the terminal. In certain mobile telecommunication networks, a user or subscriber is associated with the specific terminal in use.

In the UPT environment, the fixed association between terminal and user identification is removed. In order to offer users the capability of establishing and receiving calls on any terminal and at any location, the identification of UPT users is treated separately from the addressing of terminals and network access points. UPT user identification is achieved by means of a UPT number. The UPT user is therefore personally associated with his or her own UPT number, which is used as the basis for making and receiving calls. The UPT number is diallable on a global basis and routable from any fixed or mobile terminal, across multiple networks irrespective of geographical location, limited only by the terminal and network capabilities and any restrictions imposed by the network operator. The UPT user may be assigned one or more UPT numbers.

UPT also allows the UPT user to participate in a user-defined set of subscribed services, from amongst which the user defines personal requirements, to form a UPT service profile.

The following summary, of both short-term and long-term UPT objectives, includes:

a) *UPT service profile*

A personalized UPT service profile which contains a list of services and facilities subscribed to by the UPT subscriber, and a range of options.

b) *Personal numbering*

A UPT number, which uniquely identifies each UPT user and is used by the caller to reach that UPT user. A UPT user may have more than one UPT number for different applications (for example, a business UPT number for business calls and a private UPT number for private calls).

c) *Personal charging*

Charging, which is associated with the UPT number rather than with any terminal or network used by the UPT user.

d) *Simple billing*

Preferably, a UPT subscriber will only receive bills from one UPT service provider even though UPT facilities may have been used in different networks, in different countries and using different network operators.

e) *Terminal independence*

Telecommunication services are provided to the UPT user, independent of the terminal used. The terminal, if capable of providing the services requested by the UPT user, will make them available to the UPT user.

f) *Security and privacy*

The UPT user may use the UPT service with minimal risk of violated privacy or erroneous charging due to fraudulent use.

g) *Automation of user interaction with the UPT service*

The UPT users may make use of means to facilitate and automate their interactions with the UPT service.

h) *Access from multiple networks*

The UPT service may be used across multiple networks (e.g. PSTN, ISDN, PLMN, PDNs, etc.) using the same UPT number. The serving network, if capable of supporting the services requested by the UPT user, may make them available to the UPT user.

UPT may also operate over private networks if the private networks agree to UPT interworking with the public network.

i) *Universal service availability*

In principle, any basic telecommunications service can be used with the UPT service. The services provided to the UPT user are only limited by the networks and terminals used.

j) *Dynamic registration of terminal address*

The UPT user may dynamically and independently register with the terminal addresses at which he will make or receive calls. The registered terminal addresses may differ from service to service.

k) *Subscription involving multiple UPT users*

One UPT subscriber may be responsible for more than one UPT user, each having a personal UPT number and an associated UPT service profile (e.g. a company having a set of employees).

1) *Privacy for third parties*

Third party users (e.g. terminal owners) will, in principle, not suffer in terms of privacy or freedom of actions as a result of UPT activities by UPT users.

Early implementations of UPT may not be able to realize all these objectives. Provision of UPT services is expected to commence with a simplified set of essential and optional UPT features and capabilities, which will evolve into more advanced scenarios. Evolution of UPT is described in 4.1.

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; 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 D.280 (1995), *Principles for charging and billing, accounting and reimbursements for universal personal telecommunications*.
- ITU-T Recommendation E.164 (1997), *The international public telecommunication numbering plan*.
- ITU-T Recommendation E.168 (1999), *Application of E.164 numbering plan for UPT*.
- ITU-T Recommendation F.850 (1993), *Principles of Universal Personal Telecommunication (UPT)*.
- ITU-T Recommendation F.851 (1995), *Universal Personal Telecommunication (UPT) – Service description (service set 1)*.
- ITU-T Recommendation F.853 (1998), *Supplementary services in the Universal Personal Telecommunication (UPT) environment*.

3 Definitions and terminology

The following definitions of UPT terms used throughout this Recommendation are consistent with the abbreviated definitions in Recommendation I.114 "Vocabulary of Terms for Universal Personal Telecommunication".

3.1 authentication: A process by which the verification of the UPT user identity is accomplished.

3.2 call: In the UPT context, "call" is used to indicate telephony, data, facsimile, ISDN, B-ISDN, etc. calls.

3.3 charging reference location: The geographical location that may be used by the UPT service providers to determine the distance-related charges applying to the calling party and/or called UPT user.

3.4 identification: A process to identify the UPT user or the UPT service provider.

3.5 network limitations: The UPT-serving (or UPT-supporting) network should provide a UPT user with access to all services delineated in the UPT user's personal UPT service profile. However, the serving network may not be capable of providing, or may choose not to provide, all such services for reasons which may include coverage limitations, regulatory restrictions and domestic or international safety or other requirements.

3.6 personal mobility: The ability of a user to access telecommunication services at any terminal on the basis of a personal identifier [e.g. the UPT number or PUI (Personal User Identity)], and the capability of the network to provide those services delineated in the user's service profile. Personal mobility involves the network capability to locate the terminal associated with the user for the purposes of addressing, routing and charging of the UPT user's calls.

3.7 terminal address: A number used to identify a unique terminal or fixed network access point on a network.

3.8 terminal limitation: A UPT user accessing a network that is providing the full services of the UPT user's personal UPT service profile is only limited by the capabilities that the terminal attached to the network can support.

3.9 terminal mobility: The ability of the terminal to access telecommunication services from different locations while in motion, and the capability of the network to identify and locate that terminal.

3.10 Universal Personal Telecommunication (UPT): UPT enables access to telecommunication services while allowing personal mobility. It enables each UPT user to participate in a user-defined set of subscribed services and to initiate and receive calls on the basis of a personal, network-transparent UPT number across multiple networks on any fixed or mobile terminal, irrespective of geographical location, limited only by terminal and network capabilities and restrictions imposed by the network operator.

3.11 UPT Access Code (UPTAC): A code the UPT users may need to dial, when using certain terminals and networks, in order to enter the UPT environment before any UPT procedures can be carried out.

3.12 UPT environment: The environment within which the facilities of the UPT service are offered. It consists of combinations of networks and UPT service control facilities, which when combined, enable the UPT user to make use of the telecommunication services offered by these networks.

To the UPT user, the UPT environment appears as one global network which provides personal mobility. However, when making use of telecommunication services, the UPT user may be limited by restrictions imposed by the network, by the capabilities of the terminals and networks used, or by regulatory requirements.

3.13 UPT Number (UPTN): A number that uniquely identifies a UPT user; it is also used by a calling party to reach that UPT user. A UPT user may have more than one UPT number (for example, a business UPT number for business calls and a private UPT number for private calls).

3.14 UPT procedures: UPT procedures, as seen by the UPT user, are procedures that must be carried out in order to ensure that the UPT user is able to make or receive calls.

3.15 UPT service profile: The UPT service profile is a record containing all the information related to a UPT user in order to provide that user with the UPT service. Each UPT service profile is associated with a single UPT number.

3.16 UPT service profile management: The capability to access, interrogate and modify the UPT service profile.

3.17 UPT service provider: A service provider, to which a UPT user must subscribe for use of the facilities of UPT. The service provider will make the arrangements necessary for the provision of such facilities.

3.18 UPT subscriber: A person or legal entity having specifically subscribed to a UPT service provider for UPT services to be used by one or more UPT users. The subscriber defines, and may modify, the limits within which such users can modify their personal service profile. The subscriber is responsible for payment of the charges due to that service provider. The UPT subscriber may also be the UPT user.

3.19 UPT user: A person or entity having access to UPT services and having been assigned one or more UPT numbers. The UPT user may also be the UPT subscriber.

3.20 UPT user group: A specific set of UPT users.

3.21 UPT Access Number (UPTAN): An UPTAN is a number dialled by a UPT user to contact directly his service provider when using certain terminals and networks.

3.22 Personal User Identity (PUI): A PUI is an identity which unambiguously identifies the UPT user but is different from the UPT number although there is a one-to-one mapping between them. The PUI is an identity by which the UPT user is known to his UPT service provider, and by which the UPT user's service provider is known to other service providers and networks supporting UPT.

4 Basic considerations

4.1 Evolution of UPT

UPT is expected to materialize over a period of time and will experience an evolutionary path that is heavily impacted by evolving market needs and advances in technology. Provision of the UPT service will start with a simplified set of essential and optional UPT features and capabilities and progress into more advanced scenarios. Standardization of UPT may therefore be split into three general phases.

This Recommendation is devoted to the definition of UPT features and procedures for Service Set 2. Consequently, UPT Service Set 2 features and procedures specified in the remainder of this Recommendation are generally referred to as UPT features and UPT procedures.

4.1.1 UPT Service Set 1 – Restricted short-term UPT service scenario

In this scenario, available network capabilities may result in restrictions on the level of services, security and user-friendly features that can be offered. The restricted short-term UPT service scenario provides UPT service over the PSTN, ISDN and PLMN networks. Only the telephone service is supported in this scenario.

4.1.2 UPT Service Set 2 – Basic UPT service scenario

The basic UPT service scenario will incorporate more services and networks, moving towards full universal service availability, terminal independence and operation across multiple networks. In this scenario, for example, various data services may be provided.

4.1.3 UPT Service Set 3 – Enhanced UPT service scenario

The enhanced UPT service scenario is the long-term scenario. It is also likely that, in the future, several technological and market developments may give rise to evolutionary phases of the UPT service, which cannot be foreseen today.

4.2 Summary of UPT features

UPT Service Set 2 supports the following restricted set of features.

4.2.1 Services provided

Only the telephone service was envisaged for Service Set 1. For Service Set 2 also data services, telefax and video telephone services are considered.

4.2.2 Networks involved

All voice networks (e.g. PSTN, ISDN and PLMN) and Data networks.

4.2.3 Essential UPT features

- a) UPT user identification.
- b) UPT user identity authentication.
- c) InCall registration.
- d) Outgoing UPT call.
- e) InCall Delivery.
- f) Remote InCall registration.
- g) Outcall follow-on.
- h) Global follow-on.
- i) UPT service profile interrogation.
- j) UPT service profile modification.
- k) Access to Voice-Mail.

4.2.4 Optional UPT features

- a) OutCall registration.
- b) Remote OutCall registration.
- c) AllCall registration.
- d) Remote AllCall registration.
- e) Linked registration.
- f) Remote Linked registration.
- g) UPT-specific indications.
- h) Multiple Terminal Address registration (modified from F.851).
- i) Call Pick Up.
- j) Variable default InCall registration.
- k) Intended Recipient Identity Presentation.
- l) Access to groups of UPT service profiles.
- m) UPT service assistance.
- n) Called party specified secure answering of incoming UPT calls.
- o) UPT service provider authentication.
- p) Calling party specified secure answering of incoming UPT calls.
- q) Remote answering.
- r) Advanced addressing capability.
- s) Calling Party Message Presentation.
- t) Simultaneous Multiple UPT number InCall Registration.
- u) Choice of language for Announcements.

4.2.5 Numbering

UPT numbering is based on a personal UPT number which uniquely identifies the UPT user.

4.2.6 Charging

Location related charges are based on the caller's location and the current location of the called UPT user.

4.2.7 Service profiles

Personalized UPT service profile to enable UPT user and subscriber control and flexibility in the selection of the UPT user telecommunication services.

4.2.8 Third party protection mechanisms

- a) Essential mechanisms (see 6.7.3.1):
None identified.
- b) Optional mechanisms (see 6.7.3.2):
 - 1) exemption from any UPT usage;
 - 2) indications of UPT registrations (see 6.7.3.2.1);
 - 3) reset of registrations for incoming UPT calls (see 6.7.3.2.2);
 - 4) blocking/deblocking of registrations for incoming UPT calls (see 6.7.3.2.3);
 - 5) blocking/deblocking of incoming UPT calls (see 6.7.3.2.4);
 - 6) reset of registration for outgoing UPT calls (see 6.7.3.2.5);
 - 7) suspension of registration for outgoing UPT calls (see 6.7.3.2.6).

4.3 UPT user perspective

4.3.1 Quality of Service

In general, telecommunication services extended to UPT users via the UPT service should conform to the quality of service provisions for those telecommunication services. The transmission quality should not be influenced by the application of the UPT service. That is, the transmission quality perceived by the caller should be comparable to that obtained if the caller had dialled the number of the terminal at which the UPT call is answered. Other factors such as traffic, connection processing delay and availability may be affected by the UPT service resulting in the provision of different levels of quality to meet different end user needs.

In addition, a UPT user should in no way harm the visited network or degrade the quality of service of normal services.

4.3.2 Human factors

UPT facilities should be easy-to-use and consistent across terminal types and geographic and network boundaries so as not to deter the user from using the UPT service.

The UPT user should, therefore, not have to manually enter a large amount of information to use basic features. Similar procedures across service providers should be used for UPT access and authentication, and use of UPT procedures. Such similar procedures would simplify the UPT user interaction, reduce user errors and facilitate a degree of automation.