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Usmerjanje klicev do storitev evropskega telefonskega številskega prostora (ETNS)

Routeing of calls to European Telephony Numbering Space (ETNS) services

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Routeing of calls to European Telephony Numbering Space (ETNS) services

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Foreword

This European Standard (Telecommunications series) has been produced by ETSI Technical Committee Services and Protocols for Advanced Networks (SPAN).

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Date of adoption of this EN:	18 January 2002
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1 Scope

The present document specifies the routeing methods that shall be used for implementation of the European Telephony Numbering Space (ETNS), the alternative structures of the routeing numbers and the addressing between networks.

2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication and/or edition number or version number) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies.

[1] ETSI EN 301 161 (V1.1.1): "Management of the European Telephony Numbering Space (ETNS)".

[2] ETSI EN 301 070-1 (V1.2.2): "Integrated Services Digital Network (ISDN); Signalling System No.7; ISDN User Part (ISUP) version 3 interactions with the Intelligent Network Application Part (INAP); Part 1: Protocol specification [ITU-T Recommendation Q.1600 (1997), modified]".

[3] ETSI EN 301 464 (V1.1.1): "Integrated Services Digital Network (ISDN); Signalling System No.7 (SS7); ISDN User Part (ISUP) version 4 interactions with the Intelligent Network Application Part (INAP); Part 1: Protocol specification [ITU-T Recommendation Q.1601 (1999), modified]".

[4] ETSI TR 101 092: "Network Aspects (NA); Report on Carrier Selection".

[5] ETSI ETS 300 121: "Integrated Services Digital Network (ISDN); Application of the ISDN User Part (ISUP) of CCITT Signalling System No.7 for international ISDN interconnections (ISUP version 1)".

[6] ETSI EN 300 356-1 (V4.2.1): "Integrated Services Digital Network (ISDN); Signalling System No.7 (SS7); ISDN User Part (ISUP) version 4 for the international interface; Part 1: Basic services [ITU-T Recommendations Q.761 to Q.764 (1999) modified]".

[7] ETO Report: "Management, Routeing and Portability aspects of the European Telephony Numbering Space (ETNS)".

[8] ITU-T Recommendation E.164: "The international public telecommunication numbering plan".

[9] ITU-T Recommendation E.353: "Routing of calls when using international routing addresses".

[10] ITU-T Recommendation Q.767: "Application of the ISDN user part of CCITT signalling system No. 7 for international ISDN interconnections".

3 Definitions, symbols and abbreviations

3.1 Definitions

For the purposes of the present document, the following terms and definitions apply:

administrator: has the responsibility for the high level management of the ETNS

assisted network: network which routes a call to an ETNS number towards a serving network it has agreement with in order to complete the call

called party: entity that terminates a call to an ETNS number

calling party: entity that dials an ETNS number

ETNS country: CEPT member country participating in the ETNS

ETNS number: number from the ETNS numbering resource

ETNS registrar database: database maintained by the registrar where all data, both administrative and operational, for each ETNS number are registered

ETNS signalling address: standardized address used to route signalling messages over the interface, that is not in the call path, between any pair of ETNS entities

NOTE: An example may be the use of SCCP Global Titles.

ETNS routeing number: ITU-T Recommendation E.164 number used to route to the service exchange

NOTE: It can also identify the called party, the ETNS service provider/producer, and/or the originating network. ITU-T Recommendation E.353 is an alternative in the future.

ETNS service producer: functional entity producing the ETNS service(s) in question, having real-time control of the service(s)

ETNS service provider: functional entity that provides one or more ETNS service(s) to its ETNS subscribers on a contractual basis and is not involved in real-time control of the service

NOTE: See clause 4 for the relationship between service producer and service provider.

ETNS service: service that has been assigned a European Service Identity (ESI)

ETNS subscriber: entity that requests a ETNS number from a ETNS service provider in order to offer access from a calling party to a ETNS service

ETNS translation database: capability, which in the call process, translates the ETNS number into a routeing number

ETNS: numbering resource identified by ITU-T Recommendation E.164 country code 388 and a one digit identification code whose current value is 3, used for the provisioning of the ETNS services

originating network: network, either assisted or serving, to which the calling party is connected

registrar: responsible for the day-to-day management of the European Service Numbers (ESNs) behind each ESI

service exchange: exchange of the service network that triggers the provision of the service on reception of the routeing number, and then forwards the call

service network: network that operates one or more service exchange(s)

serving exchange: exchange, in the serving network, that can interrogate directly or indirectly an ETNS translation database to obtain a routeing number related to the ETNS number, and then forwards the call to the service network

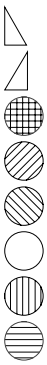
serving network: network, with one or more serving exchanges

terminating number: number containing explicit information on the terminating point of the called party

NOTE: The number is used to route towards the called party.

3.2 Symbols

For the purposes of the present document, the following symbols apply:



called party (symbol needs to correspond to figure)

calling party

combined serving and service exchange

ETNS service provider database

ETNS translation database

originating, transit or destination exchange

service exchange

serving exchange

3.3 Abbreviations

For the purposes of the present document, the following abbreviations apply:

AN	Assisted Network
CC	ITU-T Recommendation E.164 Country Code
CEPT	European Conference of Postal and Telecommunications Administrations
CN	Corporate Network
CNID	Corporate Network IDentity
CNSN	Corporate Network Subscriber Number
CS	Connected Subaddress
DR	Direct Routeing
DT	Double Translation
En	ETNS number
ESI	European Service Identity
ESNs	European Service Numbers
ETNS	European Telephony Numbering Space
GVNS	Global Virtual Network Service
IN	Intelligent Network
INAP	Intelligent Network Application Protocol
INRAs	International Network Routeing Adresses
ISDN	Integrated Services Digital Network
ISUP	ISDN User Part
NDC	National Destination Code identifying the Rn series of addresses
NDCx	National Destination Code identifying a series of terminating numbers in country x
NN	National Numbers
NNA	National Numbering Authority
NNR	National Number Resource
NoA	Nature of Address
NP	Numbering Plan
RA	Routeing Address
Rn	Routeing number
RNIC	Routeing Number Identification Code
SA	Signalling Address
SC	Signalling Capability
SCCP	Signalling Connection Control Part
ScN	Service Network
SD	Subsequent Digits
SgN	Serving Network
SN	Subscriber Numbers within the Rn series of addresses
SNIC	Service Network Identification Code
SNx	Subscriber Numbers within the Tn series of numbers in country x
SS7	Signalling System N°7
ST	Single Translation

TN	Terminating Network
Tn	Terminating number
TrN	Transit Network
VLR	Visitor Location Register (GSM)

4 Reference model for the ETNS

This clause provides a conceptual description of the implementation of the European Telephony Numbering Space (ETNS). Figure 1 shows the actors involved in the ETNS, and their relationship with each other. Also shown in figure 1 are the relevant reference points for the ETNS that are described in clauses 4.1 and 4.2. Figure 1 is divided into call-related and non-call-related parts in order to clearly show the distinction between the routeing functions and the management functions.

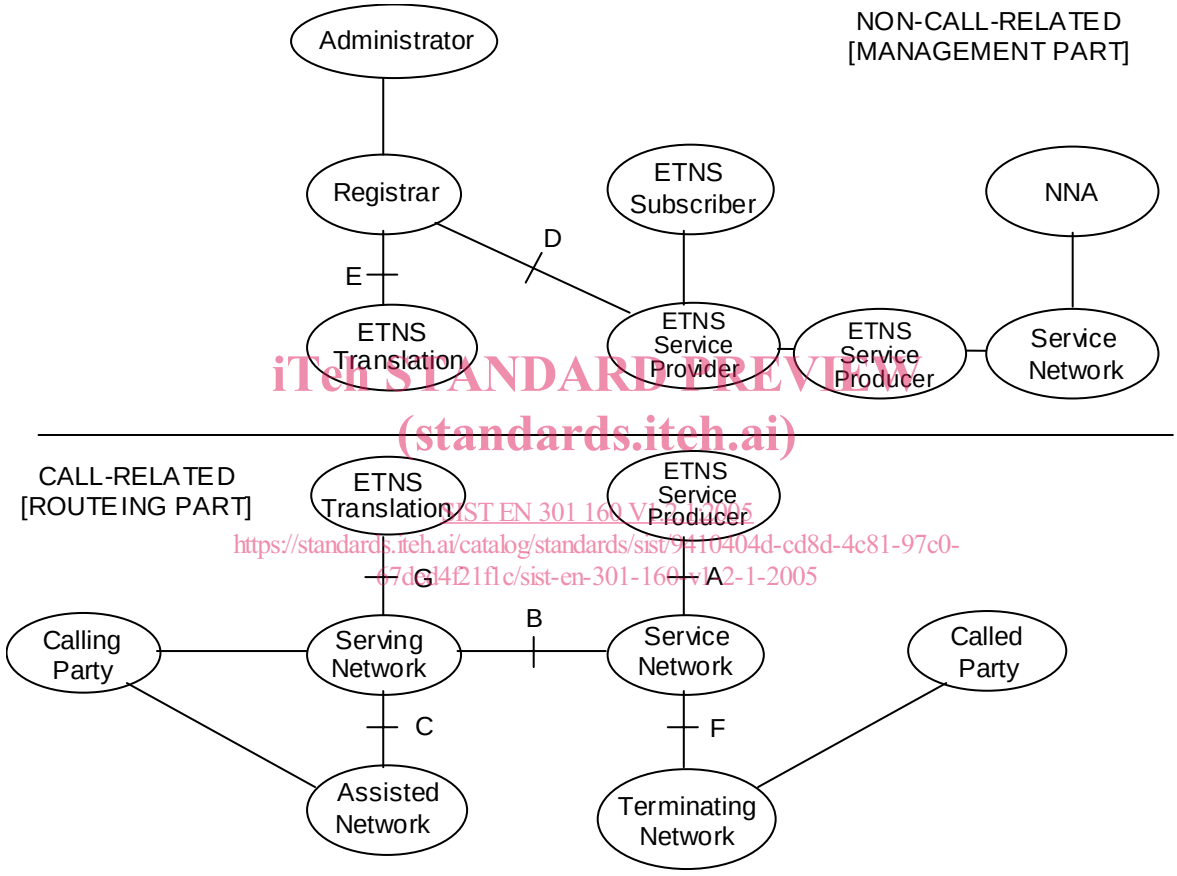


Figure 1: Actors and reference points

The reference points in the call-related part of figure 1 are used in the present document, while the reference points in the non call-related part are used in EN 301 161 [1]. For simplicity transit networks are not shown in figure 1, but these could be present between any of the networks.

The ETNS Service Provider is the entity that is relevant in the process of number assignment. The service producer and service network are entities that are relevant in call processing. The ETNS Service Provider, ETNS Service Producer and the service network may or may not be a single legal entity. Such a distinction leads to the recognition of two concepts under the term "service provision":

- the function of the first is to sell a service to an ETNS subscriber, and to be the sole interface with this ETNS subscriber. This is the role of the ETNS Service Provider;
- the function of the second is to operate the call. This is the role of the ETNS Service Producer and the service network.

The Serving Network (SgN) is responsible for routeing a call from the calling party to the service network. The service network participates through the service exchange in the provision of ETNS services.

ETNS numbers are managed by an independent body, identified as the registrar and administrator in figure 1.

4.1 Call-related (Routeing Part)

This clause describes the principles for routeing a call from the calling party to the called party. A call to an ETNS number (En) can be divided in two parts.

4.1.1 Getting the ETNS Routeing number (Rn)

The calling party shall dial the En in its international format.

Based on the ESI [1], the call is routed to the serving exchange in the SgN. Potentially, this exchange may not be located in the calling party's network. The originating network is then called an assisted network, interconnected to the SgN through reference point C. An assisted network can be connected to multiple SgNs.

The serving exchange, analysing the ESI, triggers the ETNS translation database using the incoming En to derive an outgoing ETNS Routeing Number or ETNS signalling address. The ETNS translation database can be inside or outside the SgN. Several SgNs may share the same ETNS translation database. The Routeing information from one En can vary from one SgN to another.

When the SgN and the ScN are the same, the serving and service exchange within the network can be the same, and reference point B in figure 1 will then be internal.

4.1.2 Providing the ETNS service

The proceeding of the call set up in the service network and beyond depends on the nature of the service on the one side, and on the relationship between the ETNS Service Producer and the service network on the other side.

The nature of the service will determine the path of the call.

The relationship between the ETNS Service Producer and the service network will determine the responsibilities of each actor as regards service provision. The two actors can be the same entity which operates the service, or the ETNS Service Producer can rely upon the telecommunication infrastructure of a different service network and only operate e.g. a database when a double translation is required, see clause 5. The implementation of reference point "A" between the service network and the Service Producer depends on the service, technical constraints and the requirements from the regulatory environment.

4.1.3 Examples of Call Handling

Figure 2 shows some examples of call handling. The examples show simplified network diagrams where the Calling Party is shown as directly connected to the Serving Network and the Called Party is connected to the Service Network. In practice an Assisted Network could separate the Calling Party from the Serving Network and a Terminating Network could separate the Service Network and the Called Party.

Note that the translation database provides the capability to translate the ETNS number into a routeing number or signalling address. The translation database capability can be provided in a number of ways, e.g., Intelligent Network or internal switch translations.