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**Storitve in protokoli za napredna omrežja (SPAN) – Prenosljivost številke za storitve ETNS**

Services and Protocols for Advanced Networks (SPAN); Number portability for ETNS services

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# ETSI EN 301 937 V1.1.1 (2002-10)

*European Standard (Telecommunications series)*

## **Services and Protocols for Advanced Networks (SPAN); Number portability for 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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# 1 Scope

The scope of the present document is to investigate aspects related to number portability for ETNS services using a European Telephony Number Space (ETNS). In this study the focus is on the number portability between Service Providers (SP) i.e. a customer can move from one ETNS Service Provider (SP) to another and retain a European Number for that service.

The present document describes the main technical requirements and features of number portability in the context of an ETNS service and discusses the technologies available today and in the near future for realizing number portability in an efficient way whilst trying as much as possible to minimize the impacts on the network.

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# 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] ITU-T Recommendation E.164: "The international public telecommunication numbering plan".
- [2] ETSI EN 301 161: "Management of the European Telephony Numbering Space (ETNS)".
- [3] ETSI EN 301 160: "Routeing of calls to European Telephony Numbering Space (ETNS) services".
- [4] ITU-T Recommendation E.353: "Routing of calls when using international network routing addresses".
- [5] ETSI TR 101 079: "Network Aspects (NA); Routeing of calls to pan-European services using European Telephony Numbering Space (ETNS)".
- [6] ETO Report: "Management, Routeing and Portability aspects of the European Telephony Numbering Space (ETNS), June 1998".

<http://www.eto.dk/downloads/Numbering%20reports/ETNS-MR&P.pdf>

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# 3 Definitions and abbreviations

## 3.1 Definitions

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

**assisted network:** network which routes all the calls 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 administrative database:** part of the ETNS registrar database where administrative data for each European Number is registered

**ETNS number:** See clause 5.2 of EN 301 161 [2].

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

**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 [4] is an alternative in the future.

**ETNS routeing/portability database:** part of the ETNS registrar database where all operational data necessary to routeing and portability e.g. routeing numbers for each European Number is registered

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

NOTE: See clause 4 of EN 301 161 [2] for the relationship between service producer and service provider.

**ETNS service producer database:** database from which the requested ETNS service is provided

NOTE: The service **producer** database translates the routeing number or ETNS number into a terminating number.

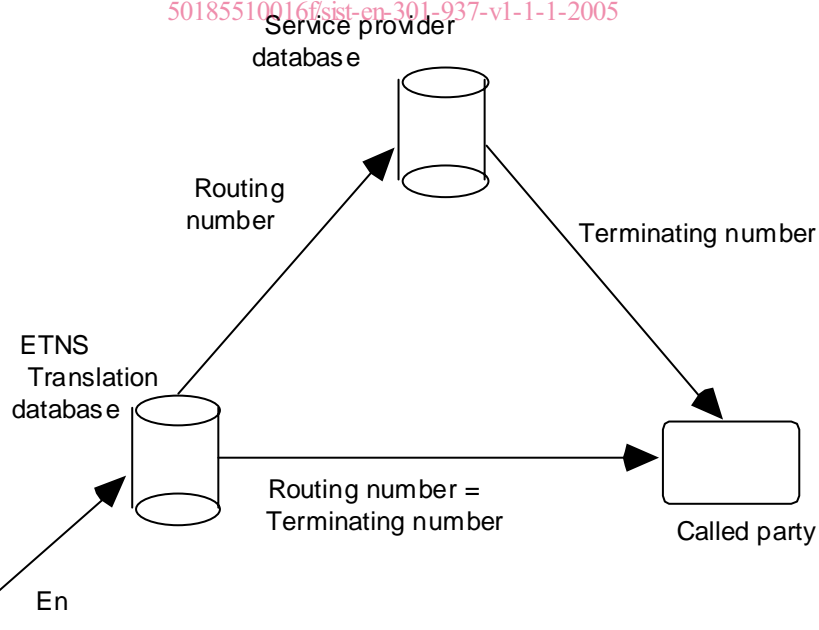
**ETNS service provider:** functional entity that provides one or more ETNS service(s) to its ETNS subscribers on a contractual basis and is not involved in real-time control of the service

NOTE: See clause 4 of EN 301 161 [2] for the relationship between service producer and service provider.

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

**location independent number:** number without any geographic information on the physical location of the called party i.e. ETNS number (En)

NOTE: A location independent number like an En cannot be used directly to route the call towards the physical location of the called party. To perform the routeing the location independent number is translated into a routeing number. Figure 1 shows the logical relationship between the terminating number, the routeing number and the En that is a specific location independent number.



**Figure 1: Relationship between En, routeing number and terminating number**

**number portability for ETNS services:** feature that allows a customer of an ETNS service to change the provider of this specific service whilst retaining the same En

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



**service exchange:** exchange of the service network that triggers the provision of the service on reception of the routing 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 routing number related to the ETNS number, and then forwards the call to the service network

**serving network:** network, with one or more serving exchanges

**tariff:** set of data used for the determination of utilization charges for used services

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

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

## 3.2 Abbreviations

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

En	ETNS number
ESI	European Service Identifier
ETNS	European Telephony Numbering Space
IN CS2	Intelligent Network Capability Set 2
NNA	National Numbering Authority
R	Registrar
Rn	Routeing number
SgN	Serving Network
SP	Service Provider

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## 4 Executive summary

The portability of European Numbers between service provider for the same service is one the primary requirements that the ETNS satisfies.

The ETNS number contains no service provider indication, thus supporting number portability between service providers.

From the point of view of the technical management of the ETNS resource, number portability has some impacts. In particular, the registrar that is responsible for the handling of the subscriber number in the En manages a database (called the ETNS registrar database) to record the status of ETNS numbers, including information such as the routing number, the subscriber and service provider identity, etc. When an En is ported, the service providers involved must inform the registrar that the En has been transferred from the recipient service provider to the donor service provider. The transfer of an En must be recorded in the ETNS administrative database. The ETNS administrative database is the portion of the ETNS registrar database which contains only administrative information. In the initial phase, the interactions between the registrar (ETNS administrative database) and service providers may not be automatic, requiring the involvement of an human operator. In a later phase, it would be beneficial to adopt fully automatic transactions between the registrar and service providers to avoid an unsatisfactory quality of service.

The En is a location independent number that needs to be translated into a routing number to properly route the ETNS call. This translation is performed by a network element called the ETNS translation database. When an En is ported between two service providers, the routing number associated with the En usually changes. Supporting number portability from the routing point of view means updating the association between an En and a routing number in the ETNS translation database. In the updating of the ETNS translation database a key role is played by the ETNS routing/portability database, which is the portion of the ETNS registrar database that contains certain administrative information and routing information. The communication between the ETNS routing/portability database and the ETNS translation database can, in the initial phase, be based on the use of manual procedures (e.g. fax, e-mail, etc.). In later phase, the use of automatic updating capabilities without human involvement should be investigated. In the long term, we can investigate the updating of the ETNS translation database via the use of IN Capability Set 2. The availability and, above all, the suitability of IN CS2 to support communication between the ETNS routing/portability database and the ETNS translation database must still be proven.

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## 5 Background

The new emerging developments in the telecommunications market and the European Union are placing new requirements on the numbering of telecommunication services. One of the most important requirements is the creation, in parallel to the present national numbering plans, of an ETNS to provide pan-European services.

The provision of number portability between service providers for ETNS services is widely recognized as a key factor to develop and strengthen a competitive service market on an European basis. The entry and the growth of new service providers will be facilitated by the possibility for a customer to change service provider whilst keeping his own ETNS number. Many entrant service providers feel the lack of number portability as an important barrier to their entry and success in the service market.

The aim of the present document is to describe what number portability for ETNS services means and identify technical solutions for realizing it.

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## 6 General assumptions and requirements on number portability

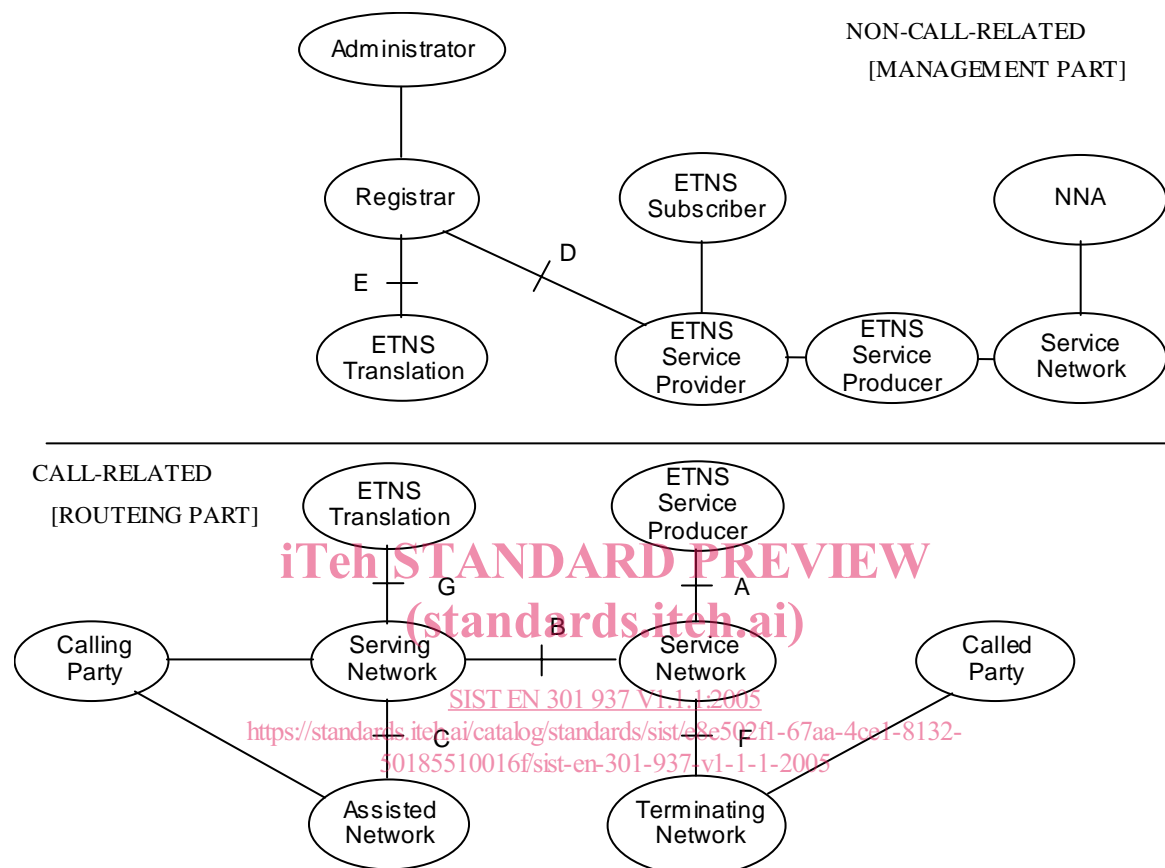
This clause lists some general assumptions and requirements related to the portability of numbers belonging to the ETNS.

- 1) Only the ETNS number (not including prefixes and suffixes) is eligible to be ported.
- 2) Only the entire ETNS number is portable i.e. not a portion of it.
- 3) The privacy of a customer who has ported his number should be guaranteed.
- 4) The calling party should not be able to recognize that it is calling a ported number.
- 5) Number portability should not normally influence the charge to the calling user.

It is recognized that the provision of ETNS number portability within the newly created number space cannot be compared with the provision of number portability within a national numbering scheme.

## 7 Reference model for the ETNS

This clause provides a conceptual description of the implementation of the ETNS. Figure 2 shows the actors involved in the ETNS, and their relationship with each other. Also shown in figure 2 are the relevant reference points for the ETNS that are described in clauses 7.2 and 7.3. Figure 2 is divided into call-related and non call-related parts in order to clearly show the distinction between the routing functions and the management functions. The following reference model reflects only the management and routing aspects of the non-call and call related parts, respectively.



**Figure 2: Actors and reference points**

The reference points in the management (non call-related) part of the figure 2 are used in the present document, while the reference points in the call-related part are used in TR 101 079 [5] and EN 301 160 [3].

The ETNS service provider is the entity that is relevant in the process of number assignment. The service network is the entity that is relevant in call processing. One single entity may be both the ETNS service producer and the service network, or they may be different entities; in the latter, the entity that assumes the function of ETNS service producer may or may not participate in the call process. Such a distinction leads to recognize two concepts under the word "service provision": the function of the first is to sell a service to a 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 service producer.

The Serving Network (SgN) is responsible for routing a call from the calling party to the service network. The service network (and potentially the service producer) is (are) responsible for providing the service itself.

EnS are managed by independent authorities which are identified as the registrar and the administrator in figure 2.

### 7.1 Call-related [Routeing part]

This clause describes the principles for routing a call from the calling party to the called party. This is studied in detail in TR 101 079 [5] and EN 301 160 [3]. A call to an En can be divided in two parts.