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SERIES E: OVERALL NETWORK OPERATION,
TELEPHONE SERVICE, SERVICE OPERATION
AND HUMAN FACTORS

International operation – Definitions

**Definitions of terms used for identifiers
(names, numbers, addresses and other
identifiers) for public telecommunication
services and networks in the E-series
Recommendations**

Recommendation ITU-T E.101



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Recommendation ITU-T E.101

Definitions of terms used for identifiers (names, numbers, addresses and other identifiers) for public telecommunication services and networks in the E-series Recommendations

Summary

The purpose of Recommendation ITU-T E.101 is to define basic terms in the area of identifiers covering names, numbers, addresses and other identifiers in the ITU-T E-series Recommendations.

History

Edition	Recommendation	Approval	Study Group
1.0	ITU-T E.101	2009-11-24	2

FOREWORD

The International Telecommunication Union (ITU) is the United Nations specialized agency in the field of telecommunications, information and communication technologies (ICTs). The ITU Telecommunication Standardization Sector (ITU-T) is a permanent organ of ITU. 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 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.

Compliance with this Recommendation is voluntary. However, the Recommendation may contain certain mandatory provisions (to ensure e.g., interoperability or applicability) and compliance with the Recommendation is achieved when all of these mandatory provisions are met. The words "shall" or some other obligatory language such as "must" and the negative equivalents are used to express requirements. The use of such words does not suggest that compliance with the Recommendation is required of any party.

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As of the date of approval of this Recommendation, ITU had not received notice of intellectual property, protected by patents, which may be required to implement this Recommendation. However, implementers are cautioned that this may not represent the latest information and are therefore strongly urged to consult the TSB patent database at <http://www.itu.int/ITU-T/ipr/>.

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Recommendation ITU-T E.101

Definitions of terms used for identifiers (names, numbers, addresses and other identifiers) for public telecommunication services and networks in the E-series Recommendations

1 Scope/Introduction

This Recommendation provides terms and definitions for use in the field of identifiers (e.g., names, numbers, addresses and other identifiers (IDs)) for public telecommunication services and networks. The purpose of this set of definitions is to aid in the understanding of different IDs used in different telecommunication networks and related Recommendations. Consistent terminology is seen as an important factor in ITU-T Recommendations, especially in Recommendations having some form of regulatory implications. For the area covering *Identifiers*, there are important Recommendations in the E-/F-series, but also in the Q- and X-series. The E-/F-series Recommendations falls under the responsibility of Study Group 2 (SG 2) and the Q-series is under SG 11, and SG 13 covers the X-series Recommendations.

These terms and definitions have been developed, for the most part, from the practice of the use of IDs in traditional telephone networks such as PSTN, ISDN and PLMN-based networks (e.g., 1G and 2G).

These terms will continue to be applicable with their current definitions for other telecommunication networks like NGNs, 3G-based PLMNs and other IP-based networks.

Alternatives for the preferred terms are given following a semi-colon.

The listings of the terms contain the following:

- Definition of terms for different types of plans (clause 3).
- Definition of generic terms for resources used in the plans (clause 4).
- Definition of terms for specific resources used in the plans (clause 4).
- Definition of terms for the structure and sub-parts of specific resources (clause 5).
- Definition of terms concerning administrative aspects for plans and resources (clause 6).

Every time a new Recommendation within the E-series is developed or an existing Recommendation is modified or deleted, this Recommendation shall be reviewed accordingly to ensure the information is accurate and up to date.

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.

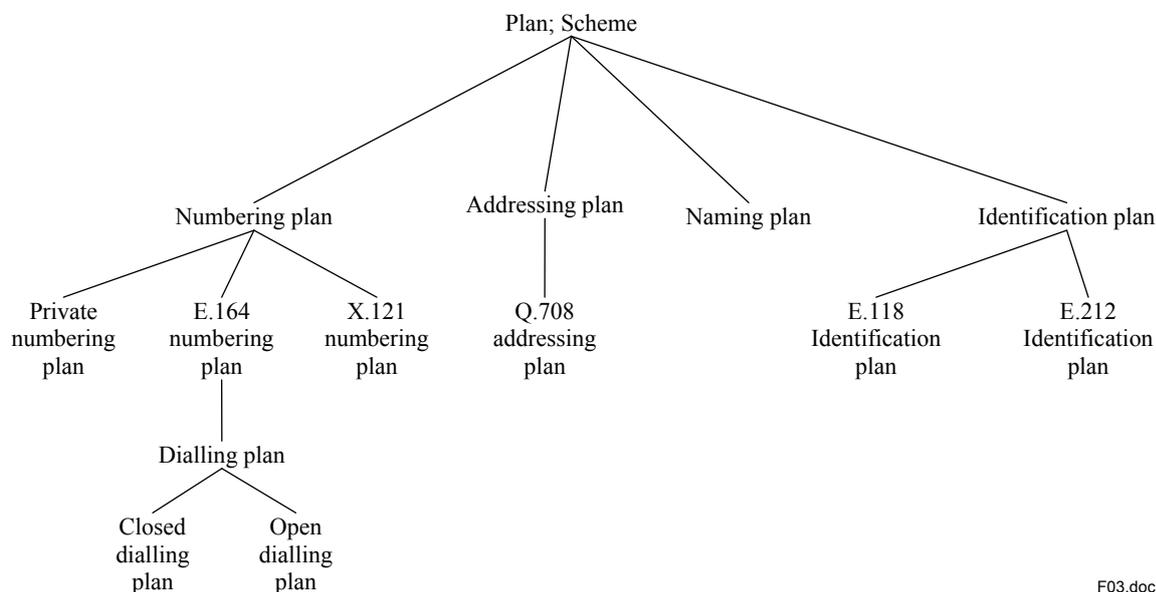
[ITU-T E.118] Recommendation ITU-T E.118 (2006), *The international telecommunication charge card*.

[ITU-T E.161.1] Recommendation ITU-T E.161.1 (2008), *Guidelines to select Emergency Number for public telecommunications networks*.

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- [ITU-T E.190] Recommendation ITU-T E.190 (1997), *Principles and responsibilities for the management, assignment and reclamation of E-series international numbering resources*.
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3 Definitions of terms for the different types of plans

This clause consists of terms for different naming, numbering and addressing plans. The concept diagram below gives an example of some of these plans.



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3.1 addressing plan: An addressing plan specifies the format and structure of addresses used within that plan.

3.2 closed dialling plan: A dialling plan where the national (significant) numbers [N(S)N] are used when dialling geographic numbers.

3.3 dialling plan [ITU-T E.164]: A string or combination of decimal digits, symbols, and additional information that defines the method by which the numbering plan is used. A dialling plan

includes the use of prefixes, suffixes, and additional information, supplemental to the numbering plan, required to complete the call.

3.4 E.164 numbering plan: A type of numbering plan that specifies the format and structure of the numbers used within that plan. It typically consists of decimal digits segmented into groups in order to identify specific elements used for identification, routing and charging capabilities, e.g., to identify countries, national destinations and subscribers. An E.164 numbering plan does not include prefixes, suffixes, and additional information required to complete a call. The national numbering plan (NNP) is the national implementation of the international E.164-numbering plan (also called the international public telecommunication numbering plan).

3.5 identification plan: A plan that specifies the format and structure of non-dialable identifiers for telecommunication networks used for network functions/elements/equipment or used for other administrative aspects of networks.

3.6 naming plan: A plan that specifies the format and structure of the names used within telecommunication networks.

3.7 numbering plan: A plan that specifies the format and structure of the numbers used within telecommunication networks. The numbers in the plan can either have uniform length or variable length or include both numbers of uniform and variable lengths.

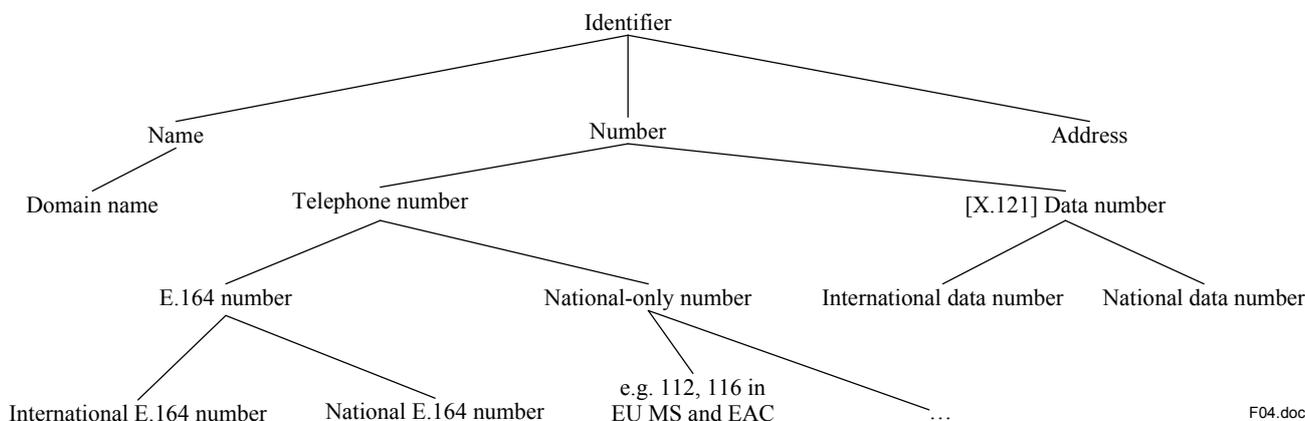
3.8 open dialling plan: A dialling plan where both numbers on the local level (subscriber numbers (SN) without area code) and numbers on the national level are used when dialling geographic numbers.

3.9 plan; scheme: A plan/scheme specifies the format and structure of identifiers used within a telecommunication network.

3.10 private numbering plan (PNP): A numbering plan that specifies the format and structure of the numbers used within an organization's private/enterprise telecommunication network. PNPs may be wholly separate from the E.164 numbering plan or may overlap with it, e.g., in the case of direct-dial-in (DDI).

4 Definitions of terms for generic and specific resources used in the plans

This clause consists of terms for generic and specific resources used in the different plans. The concept diagram below gives an example of different identifiers mostly from the E.164 numbering plan.



4.1 address: An address identifies a specific network termination point and can be used for routing to this physical and logical termination point inside a public or private network.

4.2 code: A character or a sequence of characters, digits or symbols used as an identifier.

4.3 domain name [ITU-T E.910]: An alphanumeric name that, when combined with an Internet top level domain (TLD), represents a unique name which is the sequence of labels from the node at the root of the domain to the root of the whole tree, with dots separating the labels.

4.4 E.164 number: A string of decimal digits that satisfies the three characteristics of structure, number length and uniqueness specified in [ITU-T E.164]. The number contains the information necessary to route the call to the end user or to a point where a service is provided.

4.5 emergency number: A national-only number allocated in the national numbering plan to enable emergency calls. Normally, the emergency number is a short code. Countries with integrated numbering plans may have the same number allocated as an emergency number within each country.

4.6 geographic number (GN) [b-ITU-T E.164-Sup.2]: An E.164 number which corresponds to a discrete geographic area.

4.7 global number: NOTE – See "International E.164 number".

4.8 identifier (ID): A series of digits, characters and symbols used to identify uniquely a subscriber, a user, a network element, a function, a network entity, a service or an application. Identifiers can be used for registration or authorization. They can be either public to all networks or private to a specific network (private IDs are normally not disclosed to third parties).

4.9 international E.164 number; international public telecommunication number; international number: A string of decimal digits that, for a geographic country code, uniquely identifies a subscriber or a point where a service is provided. For the case of a global service code, it identifies the subscriber of the service. For Networks, it identifies a subscriber of the Network. An international E.164 number can act in the "role" of both a name and an address. Portability is reducing a number's role as an address. Numbers are increasingly acting in the role of a name only. The number, which includes the country code and subsequent digits, but not the international prefix, contains the information necessary to route the call to this termination point on a public network (it may also contain the supplementary information necessary to forward it on a private network). It is sometimes referred to as an "international number".

In [b-IETF RFC 3966], which defines tel URI notation for telephone numbers, an international E.164 number is referred to as a global number.

4.10 international numbering resource [ITU-T E.190]: A numbering resource derived from an international number plan and assigned by ITU-T, e.g., [ITU-T E.164] and [ITU-T E.212].

4.11 local number: NOTE – See "National E.164 number" and "National-only number".

4.12 MSISDN; mobile directory number: The mobile E.164 number used by the calling party to establish a call to the end user.

4.13 name: A name is a combination of characters and is used to identify entities (e.g., subscriber, network element) that may be resolved/translated into an address. Characters may include numbers, letters and symbols.

4.14 national E.164 number: The national numbering plan (NNP) and the national dialling plan are defined by the national Numbering Plan Administrator. These plans are based on and consistent with [ITU-T E.164] and define the prefixes, national-only numbers and how the national formats (both at the local and national level) of the international E.164 numbers are structured and allocated.

On the national level, the E.164 number is structured through the national (significant) number [N(S)N] format, i.e., the national destination code (NDC) and the subscriber number (SN), not

including, if present, the national (trunk) prefix. In some cases, the NDC could be absent or form part of the SN, and in that case the N(S)N and the SN coincide.

In [b-IETF RFC 3966], which defines tel URI notation for telephone numbers, a national E.164 number is referred to as one type of local number.

4.15 national-only number: Any telephone number, defined inside a national numbering plan (NNP), which is only used and meaningful in the national dialling plan and is not reachable from abroad. Such numbers do not belong to the international E.164 numbering plan nor do they conform to the structure of international E.164 numbers, as defined in [ITU-T E.164]. Countries in an integrated numbering plan may have different national-only numbers.

In [b-IETF RFC 3966], which defines tel URI notation for telephone numbers, a national-only number is referred to as one type of local number.

4.16 non-geographic number [b-ITU-T E.164-Sup.2]: An E.164 number which has no geographic significance.

4.17 number [ITU-T E.191]: A number is a string of decimal digits.

4.18 routing address; routing number: An address/number, only used for routing purposes and not known by end users, that is derived and used by the public telecommunication network to route the call/session towards the network termination point. This address/number can also be used to route calls towards a ported number.

4.19 service number [b-ITU-T E.164-Sup.2]; **universal service number:** A non-geographic E.164 number allocated to a specific category of services.

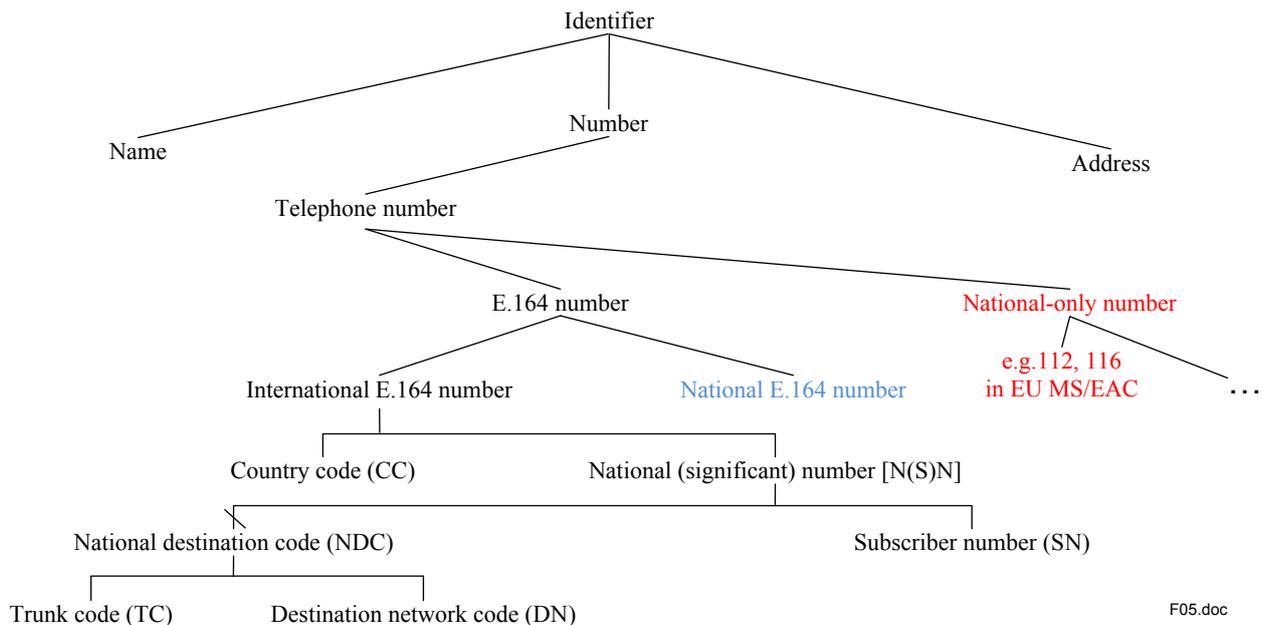
4.20 short code: String of digits in the national numbering plan (NNP), as defined by the national Numbering Plan Administrator, which can be used as a complete dialling sequence on public networks to access a specific type of service/network. The length of a short code is normally shorter than a subscriber number. In some countries, or in countries in an integrated numbering plan, the short code could be a national-only number.

4.21 tel URI: The tel URI is the representation of an E.164 number or national-only number with the context defined signalling information. This is one URI scheme that conveys telephone numbers in SIP context and defines an identifier associated to a network termination point (NTP) or a service/application.

4.22 telephone number; phone number; directory number (DN): The number, derived from the E.164 numbering plan, used by the calling party to establish a call to an end user or a service. The number may also be used for presentation services like calling line identification presentation (CLIP) and connected line identification presentation (COLP) and may also be published in different directories and/or directory enquiry services.

5 Definitions of terms for the structure and sub-parts of specific resources

This clause consists of terms for the structure and sub-parts of specific resources. The concept diagram below gives an example of the relationship for the structure and sub-parts of an international E.164 number.



5.1 area code: The combination of the national (trunk) prefix and the trunk code (TC) that identifies a specific geographic region/numbering area of the national numbering plan (NNP).

5.2 country code (CC): Country codes are used to identify either a specific country, countries in an integrated numbering plan, a specific geographic area, a group of countries, a Network or global services.

5.3 international prefix [ITU-T E.164]: A digit or combination of digits used to indicate that the number following is an international E.164-number.

5.4 mobile country code (MCC) [ITU-T E.212]: The MCC is the first field of the IMSI and is three digits in length and identifies a country. The Director of TSB may assign more than one MCC to a country. MCCs in the 90x range are administered by the Director of TSB.

5.5 national destination code (NDC): A nationally optional code field, within the international public telecommunication numbering plan (hereafter referred to as the "international E.164-numbering plan"), which – combined with the subscriber's number (SN) – will constitute the national (significant) number of the international E.164-number for geographic areas.

The NDC can be a decimal digit or a combination of decimal digits (not including any prefix) identifying a numbering area within a country (or group of countries included in one integrated numbering plan or a specific geographic area) and/or network/services.

5.6 national (significant) number [N(S)N]: That portion of the international E.164 number that follows the country code for geographic areas and is defined in national numbering plans (NNP). The national (significant) number consists of the national destination code (NDC), if present, and the subscriber number (SN). In some cases, the NDC could be absent or form part of the SN, and in that case the N(S)N and the SN coincide. The function and format of the N(S)N is nationally determined.

5.7 national (trunk) prefix: A digit or combination of digits defined in a dialling plan and used by a calling subscriber, making a call to a subscriber in his own country but outside his own numbering area.

5.8 prefix: A prefix is an indicator consisting of one or more digits that allows the selection of different types of number formats, networks and/or services. Prefixes are part of the dialling plan and do not form part of the numbering plan.

5.9 subscriber number (SN): The portion of the E.164 number that identifies a subscriber in a network or numbering area.

5.10 trunk code (TC) [ITU-T E.164]: A digit or combination of digits, not including the national (trunk) prefix, identifying the numbering area within a country (or group of countries included in one integrated numbering plan or a specific geographic area).

The trunk code has to be used before the called subscriber's number when the calling and called subscribers are in different numbering areas. The trunk code is a particular application of NDC.

6 Definitions of terms concerning administrative aspects for plans and resources

6.1 administrator: The organization, on a global, regional or national level, entrusted with the administration of a resource derived from a numbering, naming or addressing plan.

6.2 allocation: The process of opening a numbering, naming or addressing resource in a plan for the purpose of its use by a telecommunication service under specified conditions. The allocation in itself does not yet give rights for any user, whether an operator, service provider, user or someone else, to use the resource.

6.3 applicant: The petitioner applying for the assignment of a resource derived from a numbering, naming or addressing plan.

6.4 assignee: The applicant to whom numbering, naming or addressing resources have been assigned.

6.5 assignment: Authorization given to an applicant for the right of use of number, naming or addressing resources under specified conditions.

6.6 country [b-ITU-T E.164-Sup.3]: A specific country, a group of countries in an integrated numbering plan or a specific geographical area.

6.7 national numbering plan administrator [ITU-T E.212]: The organization (e.g., National Regulatory Authority/Administration) in charge of the administration of national naming, numbering and addressing plans.

6.8 numbering area: A geographic area covered by a national destination code (NDC) or area code inside a national numbering plan (NNP).

6.9 operator [ITU-T E.212]: An operating agency providing public telecommunication networks or public telecommunication services.

6.10 range; series: A set of contiguous numbers or addresses identified by the first digit(s) (e.g., the range 1XX).

6.11 reclamation: The process through which the right of use given to the assignee for the assigned number, name or address is withdrawn. The resource may be used for future potential re-assignment.

6.12 resource: Codes, numbers, names, addresses and identifiers used in the provisioning of telecommunication services or the operations of the telecommunication networks offering such services.

7 Abbreviations

This Recommendation uses the following abbreviations:

1G	First Generation mobile networks
2G	Second Generation mobile networks
3G	Third Generation mobile networks
CC	Country Code
CLIP	Calling Line Identification Presentation
COLP	Connected Line Identification Presentation
DDI	Direct-Dial-In
DN	Directory Number Destination Network
EAC	East Africa Community
EU	European Union
GN	Geographic Number
ID	Identifier
IMSI	International Mobile Subscription Identity
ISDN	Integrated Services Digital Network
LSPN	Local Special Purpose Number
MCC	Mobile Country Code
MNC	Mobile Network Code
MSISDN	Mobile Subscriber ISDN Number
NDC	National Destination Code
NGN	Next Generation Networks
NNP	National Numbering Plan
NPA	Numbering Plan Administrator
NRA	National Regulatory Authority
N(S)N	National (Significant) Number
NTP	Network Termination Point
PLMN	Public Land Mobile Network
PNP	Private Numbering Plan
PSTN	Public Switched Telephone Network
RFC	Request For Comments
SIP	Session Initiation Protocol
SN	Subscriber Number
TC	Trunk Code
URI	Uniform Resource Identifier

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