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# ITU-T

TELECOMMUNICATION
STANDARDIZATION SECTOR
OF ITU

# X.125

(09/98)

SERIES X: DATA NETWORKS AND OPEN SYSTEM COMMUNICATIONS

Public data networks – Network aspects

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# Procedure for the notification of the assignment of international network identification codes for public frame relay data networks and ATM networks numbered under the E.164 numbering plan

ITU-T Recommendation X.125

(Previously CCITT Recommendation)

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**ITU-T RECOMMENDATION X.125**

# PROCEDURE FOR THE NOTIFICATION OF THE ASSIGNMENT OF INTERNATIONAL NETWORK IDENTIFICATION CODES FOR PUBLIC FRAME RELAY DATA NETWORKS AND ATM NETWORKS NUMBERED UNDER THE E.164 NUMBERING PLAN

## Summary

This Recommendation describes the need to allocate network identifiers (known as International Network Identification Codes) for Public Frame Relay Data Networks and ATM Networks numbered under the E.164 numbering plan. The structure of the code is defined. The procedure for the notification to the Telecommunication Standardization Bureau (TSB) of ITU of the assignment of any such International Network Identification Codes for Public Frame Relay Data Networks and ATM Networks numbered under the E.164 numbering plan is also specified. These Network Identification Codes may also be used in Operation and Maintenance procedures for ATM Networks which may be defined for example in Recommendation I.610.

## Source

ITU-T Recommendation X.125 was prepared by ITU-T Study Group 7 (1997-2000) and was approved under the WTSC Resolution No. 1 procedure on the 25th of September 1998.

## 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 term *recognized operating agency (ROA)* includes any individual, company, corporation or governmental organization that operates a public correspondence service. The terms *Administration*, *ROA* and *public correspondence* are defined in the *Constitution of the ITU (Geneva, 1992)*.

## INTELLECTUAL PROPERTY RIGHTS

The ITU draws attention to the possibility that the practice or implementation of this Recommendation may involve the use of a claimed Intellectual Property Right. The ITU takes no position concerning the evidence, validity or applicability of claimed Intellectual Property Rights, whether asserted by ITU members or others outside of the Recommendation development process.

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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# PROCEDURE FOR THE NOTIFICATION OF THE ASSIGNMENT OF INTERNATIONAL NETWORK IDENTIFICATION CODES FOR PUBLIC FRAME RELAY DATA NETWORKS AND ATM NETWORKS NUMBERED UNDER THE E.164 NUMBERING PLAN

*(Geneva, 1998)*

## 1 Introduction

Public Frame Relay Data Networks may be numbered under either the X.121 numbering plan or under the E.164 numbering plan. The default numbering plan for ATM Networks is the E.164 numbering plan.

International Network Identification Codes are required for use within the Frame Relay and ATM signalling protocols (as defined for example in Recommendations X.36 and X.76) in order to support features such as transit network identification, transit network selection, closed user group interlock codes and clearing network identification.

Public Frame Relay Data Networks numbered under the X.121 numbering plan are identified by use of the Data Network Identification Codes (DNICs) associated with those networks. The procedure for the notification to the Telecommunication Standardization Bureau (TSB) of the allocation of DNICs by Administrations is described in Annex L/X.121.

Unlike the X.121 numbering plan, it is not mandatory that an E.164 number be structured to specifically identify a particular network within the domain of a particular country code. Most Administrations utilise an integrated national network numbering plan, in which cases the E.164 number structure does not identify a specific network (operator). Accordingly, the need to accommodate network identification cannot be based solely on the structure of the E.164 numbers. To overcome this problem, a protocol specific mechanism has been defined within Recommendations X.36 and X.76 in order to uniquely identify a particular Public Frame Relay Data network which may be numbered under E.164.

When used in conjunction with the E.164 Country Code, these network identifiers provide the ability to uniquely identify (on a global basis) a particular Public Frame Relay Data Network or ATM network. The network identifiers are contained within a specific field of the signalling protocol and do not impact on the structure of E.164 numbers and require no modification to national E.164 numbering plans.

Network Identification Codes are also required for possible future Operation and Maintenance procedures which may be defined for example in Recommendation I.610 and for possible future use by the ATM signalling protocols.

Such network identifiers only have relevance within the specific Frame Relay and ATM signalling protocols or the ATM OAM protocols.

## 2 Scope

This Recommendation describes the need to allocate International Network Identification Codes for Public Frame Relay Data Networks and ATM Networks which are numbered under the E.164 numbering plan. The structure of the codes are defined. The procedure for the notification to TSB of the assignment of any such network identifiers for Frame Relay Data Networks and ATM networks numbered under the E.164 numbering plan is also specified. These Network Identification Codes can also be used in Operation and Maintenance procedures which may be defined for example in Recommendation I.610.

## 3 References

This Recommendation is related to and is compatible with the following Recommendations.


[1] ITU-T Recommendation E.164 (1997), The *international public telecommunication numbering plan*.

[2] CCITT Recommendation E.165 (1988), *Timetable for coordinated implementation of the full capability of the numbering plan for the ISDN era (Recommendation E.164*).

[3] ITU-T Recommendation E.165.1 (1996), *Use of Escape code "0" within the E.164 numbering plan during the transition period to implementation of NPI mechanism*.

[4] ITU-T Recommendation E.166/X.122 (1998), *Numbering plan interworking for the E.164 and X.121 numbering plans*.

[5] ITU-T Recommendation X.121 (1996), *International Numbering plan for public data networks*.

[6] ITU-T Recommendation X.36 (1995), Amd.1 (1996), *Interface between Data Terminal Equipment (DTE) and Data Circuit-terminating Equipment (DCE) for public data networks providing frame relay data transmission service by a dedicated circuit – Amendment 1: Switched Virtual Circuit (SVC) signalling and refinements of Permanent Virtual Circuit (PVC) signalling*.

[7] ITU-T Recommendation X.76 (1995), Amd.1 (1997), *Network-to-network interface between public data networks providing the frame relay data transmission service – Amendment 1: Switched virtual circuits*.

[8] CCITT Recommendation T.50 (1992), *International Reference Alphabet (IRA) (Formally International Alphabet No. 5 or AIS) – Information technology – 7 bit coded character set for information interchange*.


## 4 Definitions

Within the public switched data network environment, the terms used for all networks and services must be compatible and consistent. Therefore this Recommendation relies on the terms and definitions defined in Recommendations E.164, X.121, X.122, X.36 and X.76.

## 5 Abbreviations

This Recommendation uses the following abbreviations:

ATM Asynchronous Transfer Mode

ITU International Telecommunication Union

OAM Operation and Maintenance

TSB Telecommunication Standardization Bureau

## 6 Structure of the International Network Identification Code

For ATM Networks and those Public Frame Relay Data Networks numbered under the E.164 numbering plan, the International Network Identification Code uniquely defines a specific network. The International Network Identification Code shall consist of the E.164 Country Code followed by a National Network Identifier. The maximum length of the International Network Identification Code is 8 digits. Only numeric values (0-9) will be used. The structure of the International Network Identification Code is shown in Figure 1.

The maximum length of 8 digits has been imposed to take account of the use of these network identifiers in Operation and Maintenance procedures which may be defined in Recommendation I.610. National Allocation Authorities should also be aware that the length of the E.164 Country Code could change in the future. The need to satisfy both these requirements in the future should be taken into account when allocating values for the National Network Identifier. It is suggested that National Network Identifier Codes should be allocated in a manner such that most significant digits are assigned the value "0".

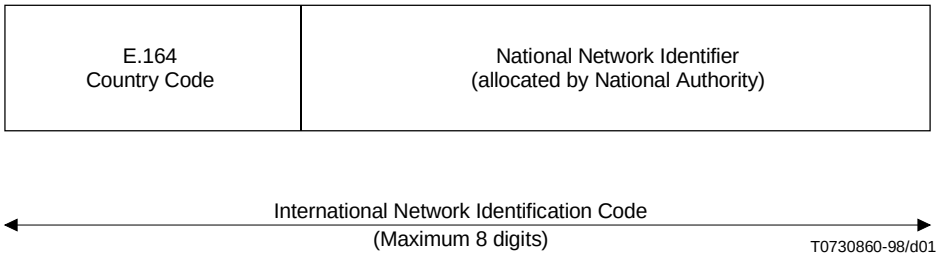


**Figure 1/X.125 – Structure of the International Network Identification Code**

## 7 The Need for an Assignment and Notification Procedure

The allocation and registration procedures for National Network Identifiers is seen to be a national matter. However, regular publication of such information is required to be made available to both users and operators of Public Frame Relay Data Networks and ATM Networks for the effective operation of features such as transit network identification, transit network selection, closed user group, clearing network identification, interworking of Public Frame Relay Data Networks and Operation and Maintenance procedures. A procedure for the notification to TSB of International Network Identifier Codes following the assignment by a National Authority of National Network Identifiers (see clause 8) has been defined in order that this information can be maintained in a central register and be published on a regular basis.

TSB will maintain a list of allocated International Network Identification Codes and regularly publish the information.

NOTE – This process is similar to that currently in use for the notification and publication of assigned X.121 DNICs as defined in Recommendation X.121.

## 8 Procedure for the notification of the assignment of International Network Identification Codes

The assignment of National Network Identifiers to Public Frame Relay Data Networks and ATM Networks numbered under the E.164 numbering plan, in order to create an International Network Identification Code, is a purely national matter and will be made by an Administration or a National Authority in accordance with national laws and regulations or agreed national arrangements. The allocating Authority will notify TSB of any new or revised assignments.

Assignments by Administrations or National Authorities of International Network Identification Codes will be published in the ITU Operational Bulletin. A recapitulatory list of the International Network Identification Codes will be published annually in the Operational Bulletin. In order to keep this list up to date, Administrations are requested to inform TSB of any new assignments, re-allocations or removals of International Network Identification Codes by completing the notification form in Annex A.

## Annex A

## Notification by Administrations or National Authorities of the assignment of International Network Identification Codes for Public Frame Relay Data Networks and ATM Networks numbered under E.164

Administrations are requested to inform TSB of any new assignments, re-allocations or removals of International Network Identification Codes by completing the following notification form.

This notification form should be returned to:

**International Telecommunication Union**
**Telecommunication Standardization Bureau (TSB)**
**Place des Nations**
**CH-1211 Geneva 20**
**Switzerland**
**Telefax: +41 22 730 5853**

| **Notification by Administrations or National Authorities of the assignment of International Network Identification Codes for Public Frame Relay Data Networks and ATM Networks numbered under the E.164 numbering plan** | | |
|---|---|---|
| Name/address of Administration or National Authority:<br><br>Contact Name:<br>Tel.:<br>Fax:<br>E-mail: | | |
| Action (new assignment, re-assignment or removal): | | |
| **International Network Identification Code**<br><br>**(See Recommendation X.125)** | **E.164 Country Code** | **National Network Identifier** |
| | | |
| Name of network to which the code is assigned: | | |
| Locality of the network (country or geographical area): | | |
| Date of action (new assignment, re-assignment, removal): | | |
| Postal address of the network operator from whom additional information may be requested:<br><br>Contact Name:<br>Tel.:<br>Fax:<br>E-mail: | | |
| Your reference: | | |
| Date: | | |
| Signature: | | |

# Appendix I

## Examples of the Use of the International Network Identification Codes

### I.1 Use within Frame Relay Signalling Protocols

Within Recommendations X.36 and X.76 which define the user-network interface and the network-to-network interface Frame Relay signalling protocols, the International Network Identification Code is coded according to Recommendation T.50. The length is variable. A specific field is used to indicate the length of the code. A maximum of 8 digits is allowed.

Information on the X.125 assignment and notification process has also been incorporated into informative Appendix IV to Recommendation X.36 and informative Appendix I to Recommendation X.76.

NOTE – Appendix IV to X.36 is contained in X.36/Amd.1 (1996) and Appendix I to X.76 is contained in X.76/Amd.1 (1997).

### I.2 Use within ATM OAM procedures

Recommendation I.610 defines Operation and Maintenance principles and functions for B-ISDN. Some ATM layer OAM cells contain a specific field to carry Location Identifier information. A number of formats and coding structures have been specified for the Location Identifier information. One option is to use an 8-digit code to specify Country Code + network ID information. The code is carried in 4 octets and is BCD coded. The International Network Identification Code is compatible with the structure specified in Recommendation I.610. If necessary, leading zero digits can be used to pad the National Network Identifier in order to achieve an 8-digit code.

### I.3 Use within ATM signalling protocols

The International Network Identification Codes are also suitable for use within the ATM signalling protocols for the purpose of identifying specific ATM networks numbered under the E.164 Numbering plan.

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