INTERNATIONAL TELECOMMUNICATION UNION

CCITT

THE INTERNATIONAL
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M.1520

(10/92)

MAINTENANCE: DESIGNATIONS AND INFORMATION EXCHANGE

STANDARDIZED INFORMATION EXCHANGE BETWEEN ADMINISTRATIONS

Recommendation M.1520

FOREWORD

The CCITT (the International Telegraph and Telephone Consultative Committee) is a permanent organ of the International Telecommunication Union (ITU). CCITT 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 Plenary Assembly of CCITT which meets every four years, establishes the topics for study and approves Recommendations prepared by its Study Groups. The approval of Recommendations by the members of CCITT between Plenary Assemblies is covered by the procedure laid down in CCITT Resolution No. 2 (Melbourne, 1988).

Recommendation M.1520 was prepared by Study Group IV and was approved under the Resolution No. 2 procedure on the 5th of October 1992.

CCITT NOTE

In this Recommendation, the expression "Administration" is used for conciseness to indicate both a telecommunication administration and a recognized private operating agency.

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Recommendation M.1520

STANDARDIZED INFORMATION EXCHANGE BETWEEN ADMINISTRATIONS

(1992)

Abstract

This Recommendation provides principles for the standardized exchange of information, defining a technique to be used for this purpose.

This Recommendation should be applied to all information exchanged in the pre-TMN environment in order to adapt it to a structure applicable to the TMN.

Keywords

– information exchange;

– information exchange template;

– standardized information exchange.

1 Purpose

The purpose of this Recommendation is to provide principles for a standardized exchange between Administrations of all network and service related information specified in CCITT Recommendations.

This Recommendation should be applied to all information exchanged in the pre-TMN environment to ensure a systematic treatment of this information in order to prepare it for a smooth transition to a standardized information exchange through TMN. Therefore all Administrations are strongly advised to follow this Recommendation.

2 General

The efficient and cost-effective implementation and operation of international networks and services require close cooperation between Administrations to share and exchange service and network-related data during network and service design/expansion, provisioning and operations.

This will become even more important with the introduction of new sophisticated international services and increased customer demands for efficient service support.

The ability of Administrations to meet these customer needs relies heavily on their ability to exchange, in a timely manner, OAM&P information which directly affects the services offered by Administrations.

These information demands will be met satisfactorily in the future by the utilization of the TMN. However, not all information that is interchanged between Administrations is organized in a way suitable to the TMN. Therefore measures have to be taken in accordance with this Recommendation to restructure all information exchanged using methods and principles established in the pre-TMN environment, in order to adapt it to a structure applicable to the TMN.

3 Field of application

At present there are CCITT Recommendations specifying the content of information that should be exchanged between Administrations to facilitate the management of telecommunication services and networks. This Recommendation specifies the standardized method that should be applied to facilitate an efficient interchange of this information between Administrations within the field of applications for all Recommendations identified in Table 1/M.1520. The table is partitioned into two different sets of macroactions (general type action) called “activity” and “aspect”.

Activity examples are

– network design;
– network provisioning;
– supervision and control;
– re-routing;
– performance assessment.

Aspect examples are

– configuration;
– status;
– measurements;
– schedules;
– directory.

Each possible combination between macroactions <Activity, Aspect> identifies a unique set of services and subservices. The pair <Service, Subservice> is a second level of discrimination and focuses on the data types that the Administration has to exchange.

TABLE 1/M.1520

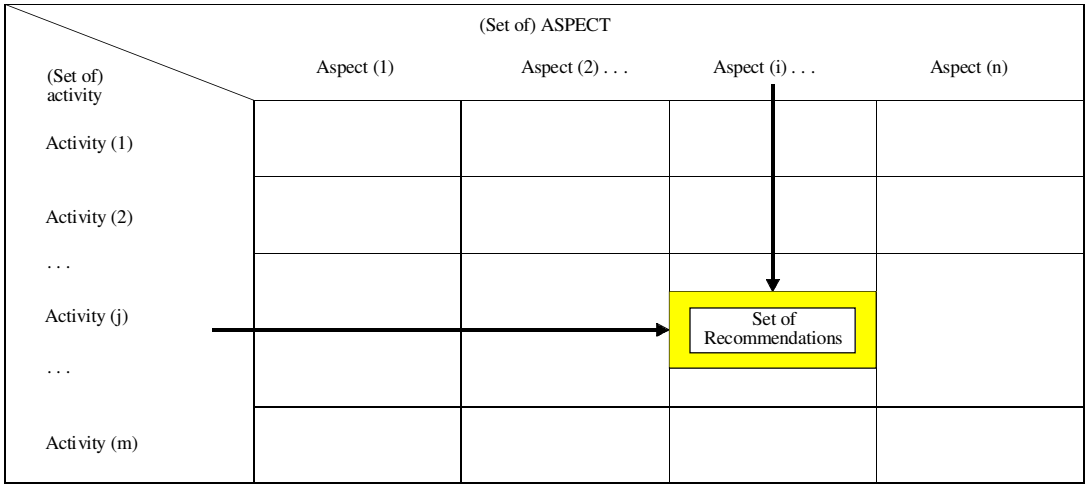
Aspect / Activity	Configuration	Status	Measurements	Schedules	Directory
Network design			E.401 E.500 E.501 E.502 E.490 E.491		M.734 M.1510 M.1560
Network provisioning	M.450 M.460 M.470 M.475 M.570 M.1045 M.1400 R.70		M.450 M.460 M.556 M.570 M.580 M.2110 M.4030		M.80 M.90 M.1012 M.1013 M.1510 M.1560
Supervision and control	M.565	E.411 M.490 M.1530 M.2130	E.411 M.1530	M.605 M.620 M.630 M.733	M.734 M.1014 M.1510 M.1560
Re-routing	M.495 M.1060			M.490 M.1060	M.725 M.1510 M.1560
Performance assessment	E.401		E.420-E.429 E.434 E.502 E.490 E.491 G.821 G.82x M.1016 M.1230 M.1235 M.2100	E.401 E.421 E.422 E.423 E.425 E.426 E.428 E.434	E.401 E.421 E.423 E.424 E.425 E.426 M.1510 M.1560

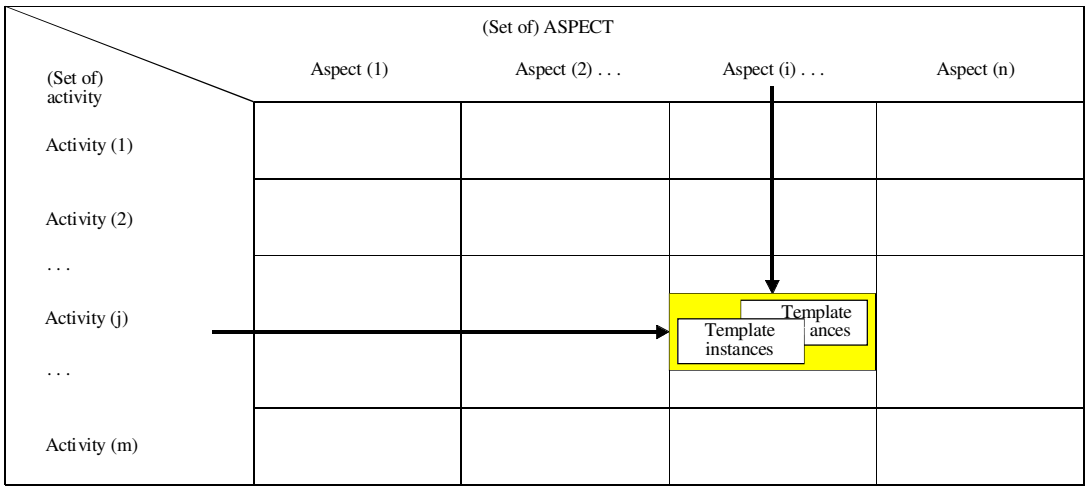
4 The information exchange template

This section defines a technique to be used for information exchanges. The purpose of this technique is to define a particular template called “Information exchange” used for data exchange between Administrations according to Table 1/M.1520.

The template is an information structure that correlates the telecommunication macroactions, the information to be exchanged and the media to be used. Table 2/M.1520 shows an example that correlates the concept of a set of Recommendations and the template.

TABLE 2/M.1520





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The template is subdivided into three different sections:

– Identity section;

– Data section;

– Requirements section.

4.1 *Information included in the "Identity section"*

The "Identity section" identifies a particular application requiring information data exchange, and is characterized by the identity name of the template instance and the associated <Activity,Aspect,Service,Subservice>.

Identity name (ID)		
Activity		Identity
Aspect		section
Service		
Subservice		

4.2 *Information included in the "Data section"*

The "Data section" consists of data that is a subset of information, and a set of conditions according to existing Recommendations.

Data		Data
Condition		section

4.3 *Information included in the "Requirements section"*

The "Requirements section" specifies information exchange requirements and consists of:

– Interval

The time interval requirement definition on <Activity,Aspect,Service,Subservice> , (possible choices are real-time periodic, on-demand, spontaneous, etc.).

– Contact

The subset of general information such as type of media (mail, telephone, fax, telex, electronic mail, file transfer, etc.), logical or physical address, format of the information, etc.

– Security level

The security value requesting the application of a certain set of security techniques such as authorized sign, cryptography, etc.

– Description

Associated text for description purposes or reference to available documents.

– Confirm

Acknowledge of received message.

– Date and time

Indicates the starting date and time of the service.

– Sender

Indicates the Administration identity sending the message.

– Receiver(s)

Indicates the Administration identity receiving the message.

Interval		
Contact	Media	
	Address(es)	
	Format ID.	
	Format information	
Security level		
Description		
Confirmation		
Date and time		
Sender		
Receivers(s)		

Requirement section

For each possible “Identity section” value the instance of "Information exchange" template is obtained from the assignment of <Activity,Aspect,Service,Subservice>.

Each “Identity section” and “Data section” may have more than one template instance.

5 Examples of the usage of the information exchange template in a pre-TMN environment

To help the Administrations to apply the recommended template to their pre-TMN environment, the following examples are provided:

– Example 1 with Network Design as Activity, Directory as Aspect, Contact point as Service, Technical service as Subservice and Fax as media.

– Example 2 with Network Design as Activity, Directory as Aspect, Contact point as Service, Technical service as Subservice and Electronic mail as media.

– Example 3 with Network Design as Activity, Directory as Aspect, Contact point as Service, International telephone service as Subservice with Telex as media.

– Example 4 with Supervision as Activity, Status as Aspect and Network maintenance circuit as Service, and File Transfer as media.

When using fax or mail, the template’s data section may be interchanged as a separate page accompanied by covering sheet holding the appropriate information as specified in the template’s “Identity section” and “Requirement section”. These sections should be filled in where applicable.

5.1 *Examples*

In this subsection, examples of the possible use of the template are presented.

Example 1

This template identifies a particular instance with Network Design as Activity, Directory as Aspect, Contact point as Service,Technical service as Subservice and Fax as media.

Information exchange		
Identity name		id
Activity		Network design
Aspect		Directory
Service		Contact point
Subservice		Technical service
Data		See Figure A-1/M.1510
Condition		No
Interval		Spontaneous
Contact	Media	Fax
	Address(s)	Phone number(s)
	Format ID	A4 paper
	Format information	
Security level		(Authorized sign)
Description		<.....>
Confirmation		Yes
Date and time		<.....>
Sender		Administration x
Receiver(s)		Administration y1 Administration y2

Example 2

This template identifies the same previous instance with Electronic Mail as media.

Information exchange		
Identity name		id
Activity		Network design
Aspect		Directory
Service		Contact point
Subservice		Technical service
Data		See Figure A-1/M.1510
Condition		No
Interval		Spontaneous
Contact	Media	Electronic mail
	Address(s)	Logic identity(s)
	Format ID.	File
	Format information	See Decnet maps
Security level		No
Description		<.....>
Confirmation		No
Date and time		<.....>
Sender		Administration x
Receiver(s)		Administration y1 Administration y2

Example 3

This template identifies a particular instance with Network Design as Activity, Directory as Aspect, Contact point as Service, International telephone service as Subservice (another Subservice respects previous example) with telex as media.

Information exchange		
Identity name		id
Activity		Network design
Aspect		Directory
Service		Contact point
Subservice		International telephone service
Data		See Figure B-1/M.1510
Condition		No
Interval		Spontaneous
Contact	Media	Telex
	Address(s)	Phone number(s)
	Format ID.	
	Format information	
Security level		
Description		<.....>
Confirmation		No
Date and time		<.....>
Sender		Administration x
Receiver(s)		Administration y1 Administration y2

Example 4

This template identifies a particular instance with Supervision as Activity, Status as Aspect and Network maintenance circuit as Service with File Transfer as media.

Information exchange		
Identity name		id
Activity		Supervision
Aspect		Status
Service		Network maintenance circuit
Subservice		
Data		[fault report, routing report, circuit data]
Condition		See Rec. M.1530
Interval		Periodical (1 month)
Contact	Media	File transfert
	Address(s)	Logic identity(s)
	Format ID.	File
	Format information	See FTAM maps
Security level		No
Description		<.....>
Confirmation		Yes
Date and time		<.....>
Sender		Administration x
Receiver(s)		Administration y1 Administration y2

6 Transition to TMN

Further study is necessary on how the "Information exchange" template can be adopted for TMN environment; one possible way could be

"Identity section" instances are considered equal to TMN management function, "Data section" is considered a place holder for managed object instances and attributes associated with a particular TMN management function and "Requirements section" is reflected in the communication protocol capabilities.