



NSAI
Standards

Standard Recommendation
S.R. CR 1350:1993

Investigation of Syntaxes for Existing Interchange Formats to be Used in Healthcare

S.R. CR 1350:1993

Incorporating amendments/corrigenda issued since publication:

The National Standards Authority of Ireland (NSAI) produces the following categories of formal documents:

I.S. xxx: Irish Standard – national specification based on the consensus of an expert panel and subject to public consultation.

S.R. xxx: Standard Recommendation - recommendation based on the consensus of an expert panel and subject to public consultation.

SWiFT xxx: A rapidly developed recommendatory document based on the consensus of the participants of an NSAI workshop.

This document replaces:

This document is based on:
CR 1350:1993

Published:
30 September, 1993

This document was published under the authority of the NSAI and comes into effect on:
21 September, 2011

ICS number:
35.240.70

NSAI
1 Swift Square,
Northwood, Santry
Dublin 9

T +353 1 807 3800
F +353 1 807 3838
E standards@nsai.ie
W NSAI.ie

Sales:
T +353 1 857 6730
F +353 1 857 6729
W standards.ie

Údarás um Chaighdeáin Náisiúnta na hÉireann

REPORT
RAPPORT
BERICHT

CR 1350:1993

September 1993

English version

**Investigation of syntaxes
for existing interchange formats
to be used in healthcare**

This CEN REPORT has been established by the CEN/TC 251 "Medical informatics" and has been approved by CEN on 1993-07-01.

CEN members are the national standards bodies of Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, United Kingdom.

CEN

European Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung

Rue de Stassart 36, B - 1050 Brussels

Table of Contents

FOREWORD	1
PART I: METHOD, INVESTIGATION, CONCLUSIONS AND RECOMMENDATIONS	3
1. INTRODUCTION	5
1.1. Scope	5
1.1.1. Original Scope	5
1.1.2. Reduced Scope	5
1.2. Definitions and Acronyms	6
1.2.1. Definitions	6
1.2.2. Acronyms	7
2. INTERWORKING BETWEEN HEALTH CARE APPLICATIONS	9
2.1. Message Development Method	10
2.1.1. Scope of the Problem Domain	10
2.1.2. Communication Parties and Communication Roles	10
2.1.3. Scenarios	11
2.1.4. Services	11
2.1.5. Domain Information Model (DIM)	11
2.1.6. General Message Descriptions (GMDs)	12
2.2. Mapping to Interchange Format Dependent Message Descriptions	13
3. FUNCTIONAL REQUIREMENTS FOR INTERCHANGE FORMATS	15
3.1. Support of Information Structures	15
3.2. Support of Datatypes	15
3.3. Encoding	15
3.4. Evolution and Backwards Compatibility	16
3.5. Conformance and Certification	16
3.6. Support and Availability	16
4. INVESTIGATION METHOD	19

5.	EVALUATION CRITERIA	21
5.1.	Scope of Evaluation Criteria	21
5.2.	Domain Dependencies	21
5.3.	Classified Evaluation Results	22
5.4.	Excluded Evaluation Criteria	22
5.5.	Description of the Evaluation Criteria	23
5.5.1.	Supported Information Structures	23
5.5.2.	Support of Datatypes.....	26
5.5.3.	Encoding.....	30
5.5.4.	Evolution and Backwards Compatibility	31
5.5.5.	Conformance	31
5.5.6.	Support and Availability	32
6.	SELECTED INTERCHANGE FORMATS	35
6.1.	Description of Evaluated Interchange Formats	37
6.1.1.	ASN.1	37
6.1.2.	ASTM E1238/HL 7	37
6.1.3.	EDIFACT	38
6.1.4.	EUCLIDES.....	38
6.1.5.	ODA	38
7.	EVALUATION RESULTS AND DISCUSSION	41
7.1.	Supported Information Structures	41
7.2.	Supported Data Types.....	42
7.3.	Encoding.....	43
7.4.	Evolution and Backwards Compatibility	43
7.5.	Conformance	44
7.6.	Support and Availability	44
8.	SUMMARY, CONCLUSIONS AND RECOMMENDATIONS	45
8.1.	Overview of Investigation Process	45
8.2.	Assessment of IFs	45
8.3.	Development of IFDMDs.....	46
8.4.	The Need for Mapping Rules from GMDs to IFDMDs	47
8.5.	Limitations of Evaluated IFs.....	47

PART II: EXAMPLES AND SUPPLEMENTARY INFORMATION	49
9. EXAMPLE A - LABORATORY COMMUNICATION	51
9.1. Scope of the Problem Domain	51
9.2. Communication Roles.....	51
9.3. Scenarios	51
9.3.1. Scenario I - GP to Laboratory, GP Collects Specimens.....	51
9.3.2. Scenario II - Clinical Department to Laboratory in Same Hospital.....	52
9.4. Services	53
9.5. Domain Information Model (DIM)	54
9.5.1. Specification of Attributes	57
9.5.2. Specification of Operations.....	59
9.6. General Message Descriptions (GMDs)	60
9.6.1. GMD for Lab Request in Scenario I.....	61
9.6.2. GMD for Lab Request in Scenario II	61
9.7. Functional Requirements for Interchange Format	63
10. EXAMPLE B - INTERNAL MEDICINE TRANSFER FOLDER	65
10.1. Scope of Problem Domain	65
10.2. Communication Roles.....	65
10.3. Scenarios	65
10.3.1. Scenario I - Internal Medicine Unit sends Folder to Cardiologist	65
10.4. Services	66
10.5. Domain Information Model	67
10.5.1. Specification of Attributes	68
10.6. General Message Descriptions (GMDs)	71
10.7 Functional Requirements for Interchange Format.....	72
11. ASN.1	73
11.1. Mapping to Interchange Format Dependent Message Descriptions.....	73
11.2. Evaluation Results	76
11.2.1. Supported Information structures.....	76
11.2.2. Supported Datatypes	77
11.2.3. Encoding	77
11.2.4. Evolution and Backwards Compatibility.....	78
11.2.5. Conformance	78
11.2.6. Support and Availability.....	79

12.	ASTM.....	81
12.1.	Mapping to Interchange Format Dependent Message Descriptions.....	81
12.1.1.	Mapping scheme.....	81
12.2.	Evaluation Results.....	85
12.2.1.	Supported Information Structures.....	86
12.2.2.	Supported Datatypes.....	86
12.2.3.	Encoding.....	87
12.2.4.	Evolution and Backwards Compatibility.....	87
12.2.5.	Conformance.....	87
12.2.6.	Support and Availability.....	88
13.	EDIFACT.....	89
13.1.	A General Mapping Method for EDIFACT.....	89
13.1.1.	How Mapping Could be Done.....	89
13.2.	Mapping to Interchange Format Dependent Message Descriptions.....	91
13.2.1.	The Objects.....	91
13.2.2.	The Message.....	92
13.3.	Evaluation Results.....	94
13.3.1.	Supported Information Structures.....	94
13.3.2.	Supported Datatypes.....	95
13.3.3.	Encoding.....	95
13.3.4.	Evolution and Backwards Compatibility.....	96
13.3.5.	Conformance.....	96
13.3.6.	Support and Availability.....	96
14.	EUCLIDES.....	97
14.1.	Mapping to Interchange Format Dependent Message Descriptions.....	97
14.1.1.	Mapping from GMD A-1.....	97
14.1.2.	Mapping from GMD A-2.....	103
14.1.3.	Mapping from the Combination of GMD A-1 and GMD A-2.....	104
14.2.	Evaluation Results.....	107
14.2.1.	Supported Information Structures.....	107
14.2.2.	Supported Datatypes.....	108
14.2.3.	Encoding.....	108
14.2.4.	Evolution and Backwards Compatibility.....	108
14.2.5.	Conformance.....	109
14.2.6.	Support and Availability.....	110

15.	ODA.....	111
15.1.	The ODA standard.....	111
15.2.	Mapping to Interchange Format Dependent Message Descriptions.....	111
15.3.	Evaluation Results	116
15.3.1.	Supported Information Structures	116
15.3.2.	Supported Datatypes	117
15.3.3.	Encoding	117
15.3.4.	Evolution and Backwards Compatibility	118
15.3.5.	Conformance	118
15.3.6.	Support and Availability	118
	ANNEXES	119
A.	TERMS OF REFERENCE	119
B.	PROJECT TEAM MEMBERS	121
C.	BIBLIOGRAPHY	123
C.1	Standard Publications	123
C.2	Other Publications	127

Foreword

This technical report was prepared under the direction of the European Committee for Standardization (CEN) and approved by the CEN Technical Committee 251 (TC 251 - Medical Informatics).

A project team, CEN/TC 251/PT004, was established in February 1992 based on mandate BC-IT 211 given by CEN/TC 251 and approved by the CEN/BT. A copy of the terms of reference for the project team is provided in annex A. The project team consisted of 8 members, given annex B.

This technical report has gone through three stages:

First, an Interim Report (INR) was produced and presented for the CEN/TC 251/WG 3 for technical control. Based on the comments received from members of WG 3, the report was updated and a First Working Document (FWD) was produced.

The FWD was submitted to CEN/TC 251 for a three months period of comments. A total of 84 comments were received. Based on these comments, an amendment to the Technical Report was produced and presented to WG3. The amendments, together with the FWD, were accepted by WG3 as a final technical document and forwarded to CEN/TC 251 for approval. CEN/TC 251 approved these documents on 1993-01-26.

This Final Document (FIN) of the Technical Report is an editorial update of the FWD together with the approved amendments. In order to enhance the readability of the report, it has been split into two parts. Part I is the main part and includes the explanation of the method and investigation together with conclusions and recommendations. Part II contains two examples of health care domain analyses and supplementary information about the investigation of each interchange format.

Sigurd From
Leader of CEN/TC 251/PT 004

Oslo, January 1993

PART I: Method, Investigation, Conclusions and Recommendations

1. Introduction

The objective of this technical report is to investigate syntaxes for existing interchange formats (IFs) to be used in health care and to define a strategy for selecting IFs. This requires the establishment of a framework for interworking between health care applications. Today such a framework does not exist and PT 004 has described a preliminary method for development of messages for information exchange within the health care which will be used in the investigation and the definition of a future strategy.

1.1. Scope

1.1.1. Original Scope

In the terms of reference for PT 004 the scope of the investigation was the whole of the health care area. The number of suggested evaluation criteria was large. In the recommended strategy for the project team it is stated "The interchange formats need to be evaluated against a set of properties. The properties will be selected both from health care and technical requirements including efficiency, richness, complexity, ambiguity, flexibility, cost and practicality".

1.1.2. Reduced Scope

Due to resource constrains, PT 004 has reduced the scope of its work. This has been done in three ways:

1. The domain of health care is reduced to two examples from the laboratory communication domain and the internal medicine domain. This selection is explained in chapter 4.
2. The number and type of evaluation criteria were reduced compared to the suggested properties in the terms of reference. Selection of the evaluation criteria was done based on the established method for message development. A more detailed explanation is given in chapter 5.
3. The number of IFs were reduced from a possible 23 down to 5. The selected formats were ASN.1, ASTM E1238, EDIFACT, EUCLIDES and ODA. This selection is explained in chapter 6.

This is a free preview. Purchase the entire publication at the link below:

[Product Page](#)

-
- [Looking for additional Standards? Visit Intertek Inform Infostore](#)
 - [Learn about LexConnect, All Jurisdictions, Standards referenced in Australian legislation](#)
-