EUROCONTROL

AERONAUTICAL TELECOMMUNICATION NETWORK PANEL

WORKING GROUP 3 (APPLICATIONS AND UPPER LAYERS)

Gran Canaria, Spain, 28 September - 1 October 1999

WG3 Agenda Item 6.3: ULCS Briefing on Package 1 maintenance

SME 4 (ATN Upper Layers) Status Report

Presented by: Tony Kerr (Sub-Volume 4 SME)

SUMMARY
This paper provides a summary status of PDRs raised against Sub-Volume 4 (Upper Layer Communications Service) of the ATN Technical Provisions, and also shows the resulting changes proposed to ICAO Doc 9705.
The Working Group is invited to approve this report.

1. INTRODUCTION

The goal of this paper is to provide WG3 with the current status of the Proposed Defect Reports (PDRs) raised against Sub-Volume 4 (Upper Layer Communications Service) of the ATN Technical Provisions, and to show the effect of RESOLVED PDRs on the text of ICAO Doc. 9705, second edition.

2. SUMMARY OF PDRs

The following table lists all PDRs raised against the ULCS Technical Provisions (Sub-Volume 4) since their approval at the Phuket ATNP WGW/1 meeting in March 1997.

The PDRs referenced in this WP are available on the ATNP archive maintained by CENA.

PDR No.	Title	ASN.1 affected?	Status (CCB/10)	Comments
97060025	ULCS D-ABORT	n/a	REJECTED	
97060026	ULCS ACSE Abort	No	Adopted	Incl. in ICAO Doc. 9705
97060027	ULCS 1.1	No	Adopted	Incl. in ICAO Doc. 9705
97100030	ULCS ISO ULEFF Renumbering	No	Adopted	Incl. in ICAO Doc. 9705
97100031	ULCS Negative Session Response	No	Adopted	Incl. in ICAO Doc. 9705
97100035	ULCS CF State Table	No	Adopted	Incl. in ICAO Doc. 9705
97100041	ULCS D-Start Version Number	No	Adopted	Incl. in ICAO Doc. 9705
97110002	PER encodings should use full-encoding OCTET STRING choice	Yes	REJECTED CCB/5	CAMAL text added
97120001	Naming of multiple AEs	No	FORWARDED CCB/5	ATNP/3 enhancement
98030007	CTS AE-Qualifier registration	No	REJECTED CCB/6	
98090007	New AE-Qualifier for METAR	No	Resolved CCB/7	Incl. in Doc. 9705 ed 2
98100006	Predicate missing in CF state table	No	Resolved CCB/8	Incl. in Doc. 9705 ed 2
98100009	AARQ parameter support	No	Resolved CCB/8	Incl. in Doc. 9705 ed 2
98100010	New AE-Qualifier for GACS AE	No	Resolved CCB/7	Incl. in Doc. 9705 ed 2
99010002	Re-use of Transport	No	WITHDRAWN	Superseded by 99040003
99030004	Abort inconsistencies	No	Resolved CCB/9	Incl. in Doc. 9705 ed 2
99040002	Address verification	No	REJECTED	
99040003	Re-use of Transport - 8327-1 defect	no	WITHDRAWN	
99050002	OID Base Reference Change	no	Resolved CCB/9	Incl. in Doc. 9705 ed 2
99080001	User data clarification	no	PROPOSED	

Statistics:

ADOPTED in 9705 ed 1	6
ADOPTED in 9705/ed 2	6
FORWARDED	1
PROPOSED	1
ACCEPTED	0
REJECTED	4
WITHDRAWN	2
SUBMITTED	0
TOTAL	20

There are also some editorial PDRs which apply to multiple Sub-Volumes, including Sub-Volume 4. These are summarised in the following table:

PDR No.	Title	ASN.1 affected?	Status (CCB/6)	Comments
97060001 (part)	Corrections to ICAO V2.0 produced by ICAO secretariat (see also UL-DR 106)	no	Adopted	Incl. in ICAO Doc. 9705
97110001 (part)	Corrections to ICAO V2.1 produced by ICAO secretariat	no	Adopted	Incl. in ICAO Doc. 9705
98040005 (part)	Corrections to ICAO V2.2 produced by ICAO secretariat	no	Adopted	Incl. in ICAO Doc. 9705

3. SUMMARY OF IMPACT ON TECHNICAL PROVISIONS

None of these PDR resolutions affect the ability of ULCS implementations to interwork. Thus, all versions of the ULCS Technical Provisions produced since the Ninth meeting of WG3 in Phuket in March 1997 are compatible at the protocol level.

The changes to ICAO Doc 9705, second edition, resulting from the RESOLVED PDRs, are presented in Attachment B to this paper.

4. CONCLUSION

The Working group is invited to note the information provided, in particular the fact that there are no compatibility problems to date since the ULCS Technical Provisions were placed under configuration control in March 1997.

The open PDRs in Attachment A are for discussion in the CCB/10 meeting in Gran Canaria.

The change pages in Attachment B are proposed to be provided to the Panel secretary for inclusion in the next Doc. 9705 amendment / edition.

ATTACHMENT A – OPEN PDRS FOR CCB DISCUSSION

```
Title:                      ULCS - User data clarification
PDR Reference:              99080001
Originator Reference:       uls/pr010
SARPs Document Reference:   SV4, 4.3.2.6.2, Note 1
Status:                     PROPOSED
Impact:                     C (Clarification)
PDR Revision Date:          13/09/99 ACCEPTED -> PROPOSED
                            24/08/99 SUBMITTED -> ACCEPTED
PDR Submission Date:        03/08/99
Submitting State/Organisation:   Eurocontrol
Submitting Author Name:          Tony Kerr
Submitting Author E-mail Address: tony.kerr@ecsoft.co.uk
Submitting Author Supplemental Contact Information:
                  ECsoft UK Ltd., Centennial Court
                  Easthampstead Road, Bracknell
                  RG12 1YQ,  UK
                  Tel: +44 1344 867199
SARPs Date:                 DOC 9705/ed 2
SARPs Language:             English
```

Summary of Defect:

Implementers of the ATN upper layer communications service have been confused
by Note 1 in 4.3.2.6.2, which explains the ISO/IEC 8823-1 choices for encoding
User-data. The confusion arises because it is not immediately apparent where
the Note ends and the technical provisions begin, since they are embedded
within an ASN.1 definition.

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Assigned SME:               SME 4 (A. Kerr)
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SME Analysis:

There is no defect as such in Sub-Volume 4, but there is a real risk of mis-
interpretation, which should be removed, as this would have dire consequences
for interoperability.

Proposed SARPs amendment:

1) Delete 4.3.2.6.2 Note 1, which states:

<italics on>Note 1.- ISO/IEC 8823-1 specifies two choices for the encoding of
User-data:

```
User-data ::= CHOICE {
    [APPLICATION 0] IMPLICIT Simply-encoded-data,
    [APPLICATION 1] IMPLICIT Fully-encoded-data }
```

```
Simply-encoded-data ::= OCTET STRING
```
<italics off>

2) Insert new Note 1, immediately before Note 2, as follows:

<italics on>Note 1.- Note that ISO/IEC 8823-1 specifies two choices for the encoding of User-data, either Simply-encoded-data or Fully-encoded-data. For ATN, presentation User Data is equivalent to Fully-encoded-data, and NOT to ISO/8823-1 User-data. That is, the bit to indicate the CHOICE of simple or full encoding is NOT encoded.

<italics off>

Impact on Interoperability:

None, if the existing text is interpreted correctly. However, if it is wrongly assumed that the top-level User-data CHOICE must be encoded, then applications using the dialogue service will not interwork at all with correct implementations.

SME Recommendation to CCB: Progress to RESOLVED

CCB Decision: (CCB-10, Spain)

ATTACHMENT B – CHANGE PAGES FOR DOC. 9705

The following pages show the effect of applying the RESOLVED PDRs to the second edition of ICAO Doc. 9705. Change bars in the margin indicate revisions.

The following PDR resolutions are incorporated:

> 99080001   User data clarification

4.3.2.5   Application Context Names

Note 1.— The Application Context describes the ASE/ASO types which are present in the AE, including those aspects not distinguished by ASO type (e.g. version and policy aspects). The abstract syntax of the APDUs and the control function are described here. The Application Context name is an identifier which is used to refer to a defined Application Context. The syntax of the Application Context name is defined in ISO/IEC 8650-1 as an Object Identifier.

Note 2.— The application context name is used here only to distinguish between different versions of an application context within the scope of a given AE type, as identified by the AE Title.

4.3.2.5.1   The Application Context name shall be used to indicate the version and policy aspects relative to the AE with which it is associated.

4.3.2.5.1   Each Application Context shall be assigned an Application Context name.

4.3.2.5.1   Application Context names shall have the following structure:

{iso (1) identified-organisation (3) icao (27) atn-ac (3) version-<n> (n)}
where n is an INTEGER in the range 0..255.

Note.— The value n = 0 is reserved for use by the CF.

4.3.2.6   Presentation Context Identification

Note.— The Null Encoding presentation protocol option has been selected for the most efficient encoding of presentation PDUs, as defined in 4.5. As a consequence, the conventional presentation protocol mechanisms which enable users of the presentation service to distinguish the presentation context of received APDUs are not available. Therefore, an alternative, application layer, mechanism is defined here.

4.3.2.6.1   All User Data which is passed across the presentation service boundary shall be encoded using the unaligned variant of the Packed Encoding Rules (PER) for ASN.1 (ISO/IEC 8825-2).

4.3.2.6.2   When in the data transfer phase, in order to be able to distinguish APDUs which are defined in different abstract syntax modules, the presentation User Data encoding shall assume the Full Encoding option of ISO/IEC 8823-1, augmented with the PER-visible constraints defined in ISO/IEC 8823-1: 1994/Amd. 1: 1997 as follows:

~~*Note 1.— ISO/IEC 8823-1 specifies two choices for the encoding of User-data:*~~

~~*User-data ::= CHOICE {*~~
~~*[APPLICATION 0] IMPLICIT Simply-encoded-data,*~~
~~*[APPLICATION 1] IMPLICIT Fully-encoded-data }*~~

Simply-encoded-data ::= OCTET STRING

Fully-encoded-data ::= SEQUENCE SIZE (1, ...) OF PDV-list
-- contains one or more presentation-data-value-list (PDV-list) values
PDV-list ::= SEQUENCE
{ transfer-syntax-name   Transfer-syntax-name OPTIONAL,
 presentation-context-identifier   Presentation-context-identifier,
 presentation-data-values CHOICE
      { single-ASN1-type   [0] ABSTRACT-SYNTAX.&Type
           (CONSTRAINED BY {
           -- Type corresponding to presentation context identifier -- }) ,
      octet-aligned   [1] IMPLICIT OCTET STRING,
      arbitrary   [2] IMPLICIT BIT STRING }
                        -- contains one or more presentation data values from the same
                                    -- presentation context.
      }

Transfer-syntax-name   ::= OBJECT IDENTIFIER -- not used for ATN Upper Layers

Presentation-context-identifier::= INTEGER (1..127, ...)

   Note 1.- Note that ISO/IEC 8823-1 specifies two choices for the encoding of User-data, either Simply-encoded-data or Fully-encoded-data. For ATN, presentation User Data is equivalent to Fully-encoded-data, and NOT to ISO/8823-1 User-data. That is, the bit to indicate the CHOICE of simple or full encoding is NOT encoded.

   Note 2.— The use of Full Encoding is specified in order to overcome the fact that: (a) the use of presentation protocol efficiency enhancements removes the ability of presentation layer to perform the necessary demarcation, and (b) the use of ASN.1 Packed Encoding Rules means that it would not have been possible to assign unique ASN.1 tag values to individual APDUs to distinguish between them, as PER does not encode tags.

4.3.2.6.3   Only the presentation-context-identifier and presentation-data-values fields shall be present in the encoded presentation User Data.

4.3.2.6.4   Only the "arbitrary" (BIT STRING) choice for presentation-data-values in the PDV-list SEQUENCE shall be used in the encoded presentation User Data.

4.3.2.6.5   The values of Presentation-context-identifier which are pre-defined in Table 4.3-3 shall be used in the encoding of presentation User Data; the presentation-context-identifiers are not dynamically assigned by the presentation service.