

AERONAUTICAL TELECOMMUNICATIONS NETWORK PANEL

Working Group 2

20th Meeting

Tokyo, Japan

3 December 1999

**SME 5 (Internet Communications Service)
Status Report**

Working Paper

Presented by Klaus-Peter Graf (Sub-Volume 5 SME)

Summary

This paper provides a summary on the status of the PDRs which have been submitted against the ATN ICS SARPs (Sub-Volume 5). Furthermore, it presents those PDRs which are still awaiting final resolution by the CCB. Positive approval of the proposed SARPs amendment of these PDRs is expected at the upcoming CCB meeting, i.e. on 6 December 1999.

1 Introduction

This paper provides a summary on the status of the Proposed Defect Reports (PDRs) raised against the ATN Internet Communications Service (ICS) SARPs for information of the WG 2 members.

Furthermore, it presents in the attachment those PDRs which have been accepted by the CCB but final approval of the proposed SARPs amendment of these PDRs is still outstanding. Positive approval of the proposed SARPs amendment is expected at the next CCB meeting, i.e. on 6 December 1999.

2 PDR Status

Table 1 presents the list of those PDRs which have been submitted to the ATNP Configuration Control Board (CCB) since its establishment in spring 1997 and which apply to the Internet Communications Service (ICS) SARPs. Column 3 of Table 1 lists the status of these PDRs in the ATNP CCB process as of 27th November 1999. Column 4 indicates the version/edition of the ATN ICS SARPs in which the agreed technical solution of the resolved PDR has been included.

PDR Number	PDR Title	CCB Status	Included (I) in ... Scheduled (S) for ..
97060028	Transport Timers Configuration	ADOPTED	ICAO Version 2.2 (I)
97060029	Various Editorial Defects (1)	ADOPTED	ICAO Version 2.2 (I)
97060030	IDRP Timers	ADOPTED	ICAO Version 2.2 (I)
97100001	Incomplete specification for use of V.42bis by Mobile SND CF	ADOPTED	ICAO Version 2.2 (I)
97100002	SND CF Call Request/Confirm User Data Length Indicator	ADOPTED	ICAO Version 2.2 (I)
97100003	Various Editorial Defects (2)	ADOPTED	ICAO Version 2.2 (I)
97100048	LREF Directory Management	ADOPTED	ICAO Version 2.2 (I)
98040003	X.25 Address Extension Facility	ADOPTED	Doc 9705 Edition 2 (I)
98050001	IDRP Update Receive Process	ADOPTED	Doc 9705 Edition 2 (I)
98060003	Predicates in ISO/IEC 8473 APRL	ADOPTED	Doc 9705 Edition 2 (I)
98060004	Support of IDRP by Airborne Router implementing optional non-use of IDRP	ADOPTED	Doc 9705 Edition 2 (I)
98060005	Air/Ground Route Initiation APRL	ADOPTED	Doc 9705 Edition 2 (I)
98060006	Correlation of ATSC Class with A/G Subnetwork Type in Airborne Router	ADOPTED	Doc 9705 Edition 2 (I)
98060007	Symmetry of Mobile SND CF APRL and Route Initiation APRL	ADOPTED	Doc 9705 Edition 2 (I)
98060008	IDRP Traffic Typing	ADOPTED	Doc 9705 Edition 2 (I)
98080001	Segmentation of Error Report PDU	ADOPTED	Doc 9705 Edition 2 (I)
98090002	Incorrect term "24-bit ICAO Aircraft Identifier"	ADOPTED	Doc 9705 Edition 2 (I)
98090003	Downgrading of ATSC Class	ADOPTED	Doc 9705 Edition 2 (I)
98090004	Backbone Hides Optimal Route to Off-Back-bone BISs	REJECTED	----

98090010	Value of SNCR in X.25 Call Request Packets	ADOPTED	Doc 9705 Edition 2 (I)
98100002	Deflate Frame Checksum	ADOPTED	Doc 9705 Edition 2 (I)
98100003	End-of-Block Code in Deflate Data Block	ADOPTED	Doc 9705 Edition 2 (I)
98100004	Deletion of Trailing Zero-Octet	ADOPTED	Doc 9705 Edition 2 (I)
98100005	Deflate Backwards Window Size	ADOPTED	Doc 9705 Edition 2 (I)
98100007	Handoff Event	ADOPTED	Doc 9705 Edition 2 (I)
99010001	Over-specification of SNSDU Requirement	ADOPTED	Doc 9705 Edition 2 (I)
99010005	Loss of IDRP Connection	ADOPTED	Doc 9705 Edition 2 (I)
99010008	References to ISO/IEC 8802-2 Broadcast Subnetworks	ADOPTED	Doc 9705 Edition 2 (I)
99030001	Parameter Setting in CLNP Echo Response PDU	ADOPTED	Doc 9705 Edition 2 (I)
99030002	Emergency Use of a Mobile Subnetwork	ADOPTED	Doc 9705 Edition 2 (I)
99050001	Echo NPDUs Supported By Iss	ADOPTED	Doc 9705 Edition 2 (I)
99070004	Remove Jitter on IDRP Timers for Airborne BIS	RESOLVED	Final Draft Edition 3 (I)
99070005	ATSC Class of Locally Originated Routes	RESOLVED	Final Draft Edition 3 (I)
99070006	ATN NSAP Address Compression Algorithm (ACA)	RESOLVED	Final Draft Edition 3 (I)
99090001	Over-specification of ARS Address Field Assignment	RESOLVED	Final Draft Edition 3 (I)
99090002	Extension Capability of Mobile SNDCF Header	PROPOSED	Final Draft Edition 3 (I)
99100003	LREF Compression and CLNP Echo NPDUs	PROPOSED	Final Draft Edition 3 (I)
99100004	ISO/IEC 8208 Non-Standard Default Packet Size Facility	PROPOSED	Final Draft Edition 3 (I)
99100005	Reservation of Unassigned/Undefined Values	PROPOSED	Final Draft Edition 3 (I)

Table 1: Status of ICS PDRs in the ATNP CCB Process

As illustrated in Table 1, a total of 39 PDRs have been raised against the ICS SARPs over the past 31 months.

WG2 members should note that there are currently no outstanding ICS PDRs, i.e. all raised defects since the closing date of Doc 9705 Edition 2 (i.e. end of WG2 Naples meeting) have been resolved and included in the Final Draft Edition 3 of Doc 9705.

2.1 Resolved PDRs

34 of these PDRs have been resolved by the WG 2 SARPs Development Mechanism (SDM) and the proposed technical solutions approved by the CCB. One PDR has been rejected.

Concerning 7 of these 34 resolved PDRs the relevant technical modifications have been included in the ICAO Version 2.2 of the ATN SARPs and also brought forward to the Manual of Technical Provisions for the Aeronautical Telecommunication Network (ATN) - ICAO Doc 9705-AN/956 (1st Edition, 1998). The agreed technical solutions of another 23 resolved PDRs have been included in Edition 2 of ICAO Doc 9705 (November 1999). The remaining 4 resolved PDRs as well as 4 other PDRs which are currently in the "Proposed" status (see last four entries in Table 1) have been included in the Final Draft Edition 3 of ICAO Doc 9705 as presented in WP 557 to this meeting.

2.2 Pending PDRs

There are currently four ICS PDRs which have been accepted by the ATNP CCB but which are still awaiting final approval of the proposed SARPs amendment by the CCB. These are PDR 99090002, PDR 99100003, PDR 99100004 and PDR 99100005 (see also Table 1). These PDRs are attached to this report for information of WG 2 members. The proposed SARPs amendment contained in these PDRs has already been approved by the WG2 SDM process; official approval by the CCB is expected at the upcoming CCB meeting on 6th December 1999.

2.3 Editorial PDRs

In addition to the PDRs listed in Table 1 a substantial number of editorial defects has been identified during the review of the ATN SARPs ICAO Version 2.0 (distributed at the Langen ATNP meetings), ICAO Version 2.1 (distributed at the Redondo Beach ATNP meetings), ICAO Version 2.2 (distributed at the Rio ATNP meetings), ICAO Doc 9705 1st Edition (distributed at the Utrecht ATNP meetings) and ICAO Doc 9705 2nd Edition (distributed to the CCB in August 1999). These defects have been documented in five editorial PDRs which apply to all Sub-Volumes of Doc 9705, including Sub-Volume 5. These PDRs and their status in the CCB process are listed in the following table:

PDR Number	PDR Title	CCB Status	Included (I) in ... Scheduled (S) for ..
97060001	Corrections to ICAO V2.0 produced by ICAO secretariat	ADOPTED	ICAO Version 2.1 (I)
97110001	Corrections to ICAO V2.1 produced by ICAO secretariat	ADOPTED	ICAO Version 2.2 (I)
98040005	Corrections to ICAO V2.2 produced by ICAO secretariat	ADOPTED	Doc 9705 Edition 1 (I)
98070003	ICAO 9705 – Engineering Version Discrepancies and Editorial Errors	ADOPTED	Doc 9705 Edition 2 (I)
99010004	ICAO 9705 Edition 1 Editorial Errors	ADOPTED	Doc 9705 Edition 2 (I)
99070001	ICAO 9705 Edition 2 Editorial Errors	PROPOSED	Final Draft Edition 3 (I)

Table 2: Status of PDRs Documenting Editorial Defects in Sub-Volume 5

PDR 9907001 is expected to be closed at the end of the series of WG meetings in Japan.

3 Recommendation

The working group is invited to note the above reported status on the ICS PDRs and to note the attached PDRs which will be presented to the upcoming CCB meeting for final resolution.

Attachment A

Title: Extension Capability of Mobile SNDCF Header
PDR Reference: 99090002
SARPs Document Reference: ICS SARPs, Section 5.7.6.2.1 and 5.7.6.2.2
Status: PROPOSED
Impact: C (Clarrification)
PDR Revision Date: SUBMITTED --> ACCEPTED (28/09/99)
ACCEPTED --> PROPOSED (10/11/99)
PDR Submission Date: 14 September 1999
Submitting State/Organisation: Germany/DFS
Submitting Author Name: Klaus-Peter Graf
Submitting Author E-mail Address: klaus.graf@unibw-muenchen.de
Submitting Author Supplemental Contact Information:
SARPs Date: SV 5 Edition 1
SARPs Language: English

Summary of Defect:

The current specification of the mobile SNDCF does not allow for octet extensions in the SNDCF header in a backwards compatible way. Such extensions will be required to signal new capabilities (e.g. maintenance of DEFLATE history window) which may be added to future versions of the ATN SARPs.

To accommodate additional mobile SNDCF options in future editions of Sub-Volume 5 in a backwards compatible way, the capability of extending the mobile SNDCF header is proposed in the following SARPs amendment.

Assigned SME: Sub-Volume V SME (K.-P. Graf)

Discussion:

The approach to provide for an extension capability to the Mobile SNDCF header has been agreed by IDG/2. A PDR has been chosen as method of promulgating this intended change in order to inform implementors early about the direction in which Sub-Volume 5 is intended to be progressed to provide backwards-compatible extensibility in the long term.

The proposed solution extends the parameter block of the Call Request and Call Accept User Data and has been specified along the following outline:

1) Format of the Call Request User Data:

- a) The SNDCF Parameter block remains as specified in Editions 1 and 2. In particular the definition of the length indicator field is unchanged and continues to indicate the number of octets in the SNDCF parameter block, from the version number field up to and including (if present) the maximum number of directory entries field.
- b) The version number of the SNDCF Parameter block is used to indicate the presence or absence of an additional SNDCF Parameter Extension Block. Version Number = 1 indicates that no SNDCF Parameter Extension Block is present and the format of the Call Request User Data remains as specified in Editions 1 and 2. Version Number = 2 indicates that an additional SNDCF Parameter Extension Block is following the existing SNDCF Parameter Block.
- c) The SNDCF Parameter Extension Block consists of a (second) Length Indicator followed by a sequence of TLV (Type-Length-Value) encoded optional parameters.
- d) The (second) Length Indicator is one octet-long, and indicates the total length of the SNDCF Parameter Extension Block.

e) The SNDCF Parameter Extension Block may be followed by a "user data field", that can be used to convey an ISH PDU.

When establishing a call, a Package 2 router may select to use Version 1 or Version 2 of the SNDCF protocol. In the case, additional compression parameters have to be conveyed, it will use Version 2. A Package 1 compliant router that is called by a Package 2 compliant router, will process the SNDCF Parameter Block and will not accept the call, if the Version Number is 2; it will respond with a Call Clear packet indicating "Version number not supported" in the diagnostic code. This will allow the calling Package 2 router to re-establish the call with Version Number set to one, but without the additional compression parameters.

2) Format of the Call Accept User Data:

a) One of the spare bits in octet 1 of the Call Accept user data is used to indicate the presence (if the bit set) or absence (if the bit is not set) of a subsequent SNDCF Parameter Extension Block in the Call Accept user data.

b) An SNDCF Parameter Extension Block will be present in the Call Accept User Data only if a Call Request packet with Version Number = 2 has been received. This insures backwards compatibility between a calling Package 1 router and a called Package 2 router.

c) When present, the SNDCF Parameter Extension Block consists of a Length Indicator followed by a sequence of TLV (Type-Length-Value) encoded optional parameters.

d) The Length Indicator is one octet long and indicates the total length of the SNDCF Parameter Extension Block.

e) The SNDCF Parameter Extension Block may be followed by a "user data field", that can be used to convey an ISH PDU.

This approach allows for the extension of the SNDCF header to convey additional parameters in a backwards compatible way, but at the cost of a second call establishment sequence, if the calling router uses Version 2 of the SNDCF protocol and the calling router complies to Edition 1 or 2 of the ICS SARPs.

Proposed SARPs Amendment:

See file 99090002.zip in the directory atnp/ccb/sme5 on the CENA ATNP archive (<http://www.tls.cena.fr/atnp/ccb/sme5/99090002.zip>)

Impact on Interoperability:

The SARPs amendment proposed in this PDR will provide for the necessary long-term backwards compatibility mechanism when introducing new SNDCF capabilities in future SARPs versions. The SARPs amendment is specified in a way that it will be backwards compatible with implementations based on Edition 1 and 2 of Doc 9705. This backwards compatibility is achieved by a mechanism which requires routers implementing this PDR to fall back to version 1 of the SNDCF protocol (specified in Edition 1 and 2 of Doc 9705), when recognising (from the diagnostic code of a received call clear packet) that the peer router has not implemented this PDR.

SME Recommendation to CCB: Accept proposed SARPs amendment

CCB Decision: PDR ACCEPTED (CCB-10)

Attachment B

Title: LREF Compression and CLNP ECHO NPDUs
PDR Reference: 99100003
Originator Reference:
SARPs Document Reference: ICS SARPs, Section 5.7.6.3.2.3
Status: PROPOSED
Impact: C (Clarification)
PDR Revision Date: SUBMITTED --> ACCEPTED (10/11/99)
ACCEPTED --> PROPOSED (26/11/99)
PDR Submission Date: 29/10/99
Submitting State/Organisation: France/STNA
Submitting Author Name: Stephane Tamalet
Submitting Author E-mail Address: Tamalet_stephane@stna.dgac.fr
Submitting Author Supplemental
Contact Information:
SARPs Date: SV 5 Edition 2
SARPs Language: English

Summary of Defect:

It appears that chapter 7 of Subvolume 5 is not very specific on the way ECHO REQUEST/RESPONSE PDUs have to be processed by the mobile SNDCEF when the LREF compression is in use:

1) the section 5.7.6.3.2.2 explains that any PDUs other than ISO 8473 (CLNP), ISO 9542 (ES-IS), ISO 10589 (IS-IS) and ISO 11577 (NLSP) PDUs sent over the A/G link, have to be discarded by the mobile SNDCEF. According to this section, ECHO REQUEST/RESPONSE PDUs should not be discarded since they are standard ISO 8473 PDUs

2) the paragraph 5.7.6.3.2.3.1 lists the cases for which an ISO 8473 PDU must be sent unchanged (uncompressed) over the A/G link. Namely:

- a) When the Source Routing option is present,
- b) When the Recording of Route option is present,
- c) When the QoS Maintenance option is anything other than the globally unique format,
- d) When the padding option is present,
- e) When the priority option is present with a value > 14,
- f) When an unknown parameter is present.

According to this paragraph, an ECHO REQUEST/RESPONSE PDU that does not verify any of the above conditions, should be sent compressed over the A/G link

3) the section 5.7.6.3.3 specifies how to compress with LREF a PDU. However, the compression procedures specify only how to compress an ISO 8473 DATA and ERROR REPORT PDU. There is therefore an ambiguity on the way ECHO REQUEST/RESPONSE PDU must be processed by the mobile SNDCEF when LREF is in use.

It is proposed to clarify the issue by removing the ambiguity that currently exists on this subject in the SARPs.

Assigned SME: Sub-Volume V SME (K.-P. Graf)

Discussion:

There are 3 possible options in the processing of an ECHO REQUEST/RESPONSE PDUs by the mobile SNDCEF when the LREF compression is in use.

- Option a): The ERQ/ERP PDUs are systematically discarded when LREF is used
Option b): The ERQ/ERP PDUs are sent uncompressed (the ProATN and TAR approach)
Option c): The ERQ/ERP PDUs are sent compressed

The option b) is proposed as the default to be implemented in all ATN systems.

The rationale is as follows:

1) The option a) can be of interest if it is commonly agreed that ERQ/ERP must not be exchanged over mobile subnetworks. However, in such a case, option a) would not be sufficient. This is because with option a) ERQ/ERP are only filtered if and only if LREF is used. If Deflate is used without LREF, or no compression mechanism is in use, then the ERQ/ERP PDU will not be filtered. So, if there is a requirement to prevent the transmission of ERP/ERQ PDU over mobile subnetworks, then a more general filtering mechanism (compression method independent) has to be specified within the SNDCF.

2) Option b) is proposed because it is believed that the use of ERP/ERQ over mobile subnetwork can be of interest in some cases for fault and performance management. This feature should therefore be supported by default by implementations.

3) Option c) would require major text amendments in chapter 7 (to specify how ERP and ERQ must be compressed. It would be costly for implementations and would not be backwards compatible. Furthermore, there is little to gain in compressing the ERQ and ERP PDUs since it is expected that these PDUs will be very rarely exchanged over mobile subnetworks.

Proposed SARPs Amendment:

Replace paragraph 5.7.6.3.2.3.1 by

"5.7.6.3.2.3.1 The ISO/IEC 8473 NPDU header contained in the SN-Userdata shall then be inspected. If one of the following is true:

- a) the ISO/IEC 8473 NPDU is an Echo Request (ERQ) or Echo Response(ERP) NPDU,
- b) parameters other than the security, priority or QoS Maintenance parameters are present in the options part of the NPDU header,
- c) the QoS Maintenance parameter is anything other than the globally unique format,
- d) the priority option is present with a value greater than 14,

then the SN-Userdata shall be sent unchanged over the virtual circuit using M-bit segmentation procedures as appropriate."

Impact on Interoperability: None

SME Recommendation to CCB: Accept proposed SARPs amendment

CCB Decision: PDR ACCEPTED (10/11/99)

Attachment C

Title: ISO/IEC 8208 Non-Standard Default Packet Size Facility
PDR Reference: 99100004
Originator Reference:
SARPs Document Reference: ICS SARPs, Section 5.7.6.2.1.3
Status: PROPOSED
Impact: C (Clarification)
PDR Revision Date: SUBMITTED --> ACCEPTED (10/11/99)
ACCEPTED --> PROPOSED (26/11/99)
PDR Submission Date: 29/10/99
Submitting State/Organisation: USA/FAA/MITRE
Submitting Author Name: Linda Boan
Submitting Author E-mail Address: lboan@mitre.org
Submitting Author Supplemental
Contact Information:
SARPs Date: SV 5 Edition 2
SARPs Language: English

Summary of Defect:

Para 5.7.6.2.1.3.1 mandates the use of the ISO/IEC 8208 non-standard default packet size facility to make full use of the maximum packet size supported by the a/g subnetwork. However, there are alternative methods (e.g. the ISO/IEC 8208 flow control negotiation facility) of achieving the same effect. So, the underlying requirement is correct, i.e. using the biggest packet size possible for each SVC, but the SARPs are over pre-scriptive in mandating a particular procedure. Consequently they should be relaxed to let the implementor choose the most appropriate way of achieving the underlying requirement.

Assigned SME: Sub-Volume V SME (K.-P. Graf)

Proposed SARPs Amendment:

- 1) Amend the existing para 5.7.6.2.1.3 to read: "5.7.6.2.1.3 Non-Standard Default Packet Size Facility and Flow Control Parameter Negotiation Facility"
- 2) Amend the existing para 5.7.6.2.1.3.1 to read: "5.7.6.2.1.3.1 Either the Non-Standard Default Packet Size Facility or the Flow Control Parameter Negotiation Facility shall be used to request the maximum packet size supported by the subnetwork."
- 3) Add a new note under 5.7.6.2.1.3.1 to read: "Note. -- The selection of which facility to use is dependent on the facilities supported by the subnetwork."

Impact on Interoperability: None

SME Recommendation to CCB: Accept proposed SARPs amendment

CCB Decision: PDR ACCEPTED (10/11/99)

Attachment D

Title: Reservation of Unassigned/Undefined Values
PDR Reference: 99100005
Originator Reference:
SARPs Document Reference: ICS SARPs, Sections 5.6.2.2.6.7, 5.6.2.2.6.8, 5.8.2.1.4.4, 5.8.3.2.8
Status: PROPOSED
Impact: C (Clarification)
PDR Revision Date: SUBMITTED --> ACCEPTED (10/11/99)
ACCEPTED --> PROPOSED (26/11/99)
PDR Submission Date: 31/10/99
Submitting State/Organisation: Germany/DFS
Submitting Author Name: Klaus-Peter Graf
Submitting Author E-mail Address: klaus.graf@unibw-muenchen.de
Submitting Author Supplemental
Contact Information:
SARPs Date: SV 5 Edition 2
SARPs Language: English

Summary of Defect:

The paragraphs 5.6.2.2.6.7, 5.6.2.2.6.8, 5.8.2.1.4.4, 5.8.3.2.8 assign specific values for the routing preferences, security classification, supported ATSC Class, and the capacity route metric respectively, to be used in the header of CLNP and IDRPs PDUs respectively. However, the specification misses to reserve currently unassigned/undefined values for future use by future editions of SV5.

Assigned SME: Sub-Volume V SME (K.-P. Graf)

Proposed SARPs Amendment:

1.) Add the following new paragraph 5.6.2.2.6.7.4:

"5.6.2.2.6.7.4 Those security tag values which are not defined in Table 5.6-1 shall be reserved for future use by this specification."

2.) Add the following new paragraph 5.6.2.2.6.8.4:

"5.6.2.2.6.8.4 Those security classification tag values which are not assigned in Table 5.6-2 shall be reserved for future use by this specification."

3.) Add the following new paragraph 5.8.2.1.4.4.3.8:

"5.8.2.1.4.4.3.8 Those ATSC Class values which are not defined in Table 5.8-1 shall be reserved for future use by this specification."

4.) Add the following new paragraph 5.8.3.2.8.2:

"5.8.3.2.8.2 Those capacity route metric values which are not assigned in Table 5.8-6 shall be reserved for future use by this specification."

Impact on Interoperability:

Implementations compliant with Edition 1 or 2 of SV5 should not have used any undefined or unassigned values for parameters specified in SV5. Although their use is highly unlikely, it cannot be ruled out completely.

Interoperability is not affected by the proposed SARPs amendment. Interoperability problems with Package 1 systems may arise if the currently undefined or unassigned values will be allocated by future editions of SV5.

SME Recommendation to CCB: Accept proposed SARPs amendment

CCB Decision: PDR ACCEPTED (10/11/99)