AERONAUTICAL TELECOMMUNICATION NETWORK PANEL

Working Groups 1 and 2

San Diego, California , USA 17 - 28 October 1994

Report of the Ad-Hoc Meeting on ATN Validation Tools and Procedures

Presented by B. Gouvine (France)

Prepared by F. Colliver

SUMMARY

An ad-hoc meeting on ATN Validation Tools and Procedures was hosted by the UK CAA from 30 August through 2 September 1994, at the CAA House in London. This meeting was convened to initiate discussion on this subject among those actively involved in the prototyping and validation of ATN systems, in order to prepare for the Autumn 1994 meeting of ATNP/WG2. An invitation to the meeting was addressed to those ATN Panel participants known to be conducting ATN validation activities; other interested ATNP participants were invited to participate as well.

REVISION HISTORY

Section	Date	Issue	Reason for Change
	12 October 1994	Issue 1.0	Document Creation

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Issue 1.0

F. Colliver

1. Introduction

An ad-hoc meeting on ATN Validation Tools and Procedures was hosted by the UK CAA from 30 August through 2 September 1994, at the CAA House in London. This meeting was convened to initiate discussion on this subject among those actively involved in the prototyping and validation of ATN systems, in order to prepare for the Autumn 1994 meeting of ATNP/WG2. An invitation to the meeting was addressed to those ATN Panel participants known to be conducting ATN validation activities; other interested ATNP participants were invited to participate as well.

2. Attendance

The following ATNP members and advisors attended the meeting.

Name	Representing	Organization
Forrest Colliver	France	Sofréavia
Jean-Michel Crenais	France	CENA
Ken Crocker	USA	MITRE
Ron Jones	USA	FAA
Yutaka Marukawa	Japan	NEC
Dave Sanford	USA	MITRE
Akhil Sharma	UK	CAA
Hélène Thulin	SITA	SITA
Steve Van Trees	USA	Stel
Tony Whyman	Eurocontrol	MWA

3. Meeting Objectives

The purpose of the meeting was to refine work in progress in the following areas:

1. Understanding of the current status of the ICAO ATN Manual publication (following the editorial activities of July 1994 in Montréal), and its relation to distribution and use of the electronic ATN Manual "Validation Draft" of 19 November 1993;

2. Agreement on a development approach for ATN SARPs (i.e. should the approach be based on a) evolution of the current ATN Manual, or b) creation of ATN SARPs text from the Requirements Database), and discussion of the associated ATN Manual and Requirements Database maintenance issues;

3. Agreement on a detailed process for validation change proposal discussion and formal decision making (i.e. the refinement of the procedural framework endorsed by the ATN Panel, and documented in the ATNP Report, Appendix C to the Report on Agenda Item 5);

4. Agreement on the archival and electronic mail facilities necessary to support the validation process, and on the necessary configuration management environments to support these facilities.

The meeting agreed to produce this report to document conclusions and proposals, for consideration during the upcoming ATNP/WG2 meeting.

4. Summary of Meeting Proceedings

4.1 Agenda Item 1: Approval of the Agenda

The proposed agenda for the meeting was as follows:

1. Approval of the Agenda

2. Summary Reports of ATN Validation Activities in Progress

3. Status/Issues related to ATN Manual
   a) ICAO ATN Manual Publication Status
   b) Use and Distribution of Validation Draft (19 November 1993)

4. Methods Employed to produce ATN SARPs
   a) Evolution of ATN Manual Text
   b) Production of ATN SARPs from Requirements Database

5. Processes and Tools for ATN Validation Support
   a) Process for Creation/Dissemination of Defect Reports and Change Proposals
   b) Process for Technical Decision Making (i.e. change proposal resolution)
   c) Procedures for Coordination with ICAO and with ATN Panel
   d) Tools for Technical Interchange and Discussion among Validation Staff
   e) Tools for File Archive and Retrieval, and Database Configuration Management

6. Preparation of Conclusions and Recommendations (i.e. report preparation)

Following the introduction of the intended content of each agenda item, the proposed agenda was approved.

4.2 Agenda Item 2: Reports of ATN Validation Activities in Progress

4.2.1 USA

Ken Crocker reported the US validation activities performed by MITRE, FAA Technical Center, and MERIT Networks. MITRE has completed the development of the laboratory infrastructure in which to perform ATN validation. This laboratory consists of fifty workstations configured as end-systems, intermediate-systems, and combination end- and intermediate- systems. Facilities exist for the emulation

of satellite and Mode-S air-ground subnetworks as well as the emulation of mobile aircraft consisting of end-systems and routers.

The MITRE router implementation is running ES-IS over X.25, the mandatory ATN SNDCF features, subnetwork leave and join events, CLNP with quality of service (QOS) and security based forwarding, and release 0.9.7 of the MERIT IDRP implementation. MITRE has been experimenting with IDRP in a mobile environment since June 1994. These experiments utilize approximately ten ground routers and one mobile using a combination of X.25, Ethernet, and serial point-to-point (PPP) connections. The bulk of the MITRE experimentation involves exercising IDRP in an emulated mobile environment to assess and understand ATN scaling properties.

MITRE is currently running AEEC 745 compliant air and ground ADS applications as end systems. Additionally, transport test software and CLNP echo software are used to load the experimental ATN.

These routers and end-systems are being used by the FAA Technical Center in ATN flight tests. The FAA has run the end-systems with a transport test driver; a router running CLNP, ATN SNDCF, and X.25; and an FAA Mode-S subnetwork to successfully establish a transport connection over the air-ground subnetwork. Full details of the US validation program will be presented at the October ATNP Working Group meeting.

4.2.2 UK

Akhil Sharma briefed validation activities in the UK. The UK CAA is contributing to the development of a commercial implementation of the IDRP protocol which will be compliant with all ATN specific requirements with the possible exception of route aggregation. The planned release date is end of September 1994 with acceptance testing scheduled for completion by mid-November. The EUROCONTROL Agency has also let a contract with the same developer to develop a 'Trials ATN Router' (TAR) which will integrate this IDRP development into the developer's OSI Router product and also modify the product to provide an ATN compliant router including the implementation of a mobile SNDCF supporting local referencing compression mechanisms.

The UK ADS and SATCOM trials are progressing to the next phase which will include a Data 3 compliant Satellite Data Unit (SDU), the implementation of TP4, CLNP and ES-IS in the end-systems on the ground and in the aircraft, the deployment of an ATN compliant Router (including the mobile SNDCF while excluding IDRP) in the ground infrastructure and the implementation of a limited context management function in the air and ground end-systems.

4.2.3 Japan

Yutaka Marukawa briefed activities supporting ATN validation in Japan. The Electronic Navigation Research Institute (ENRI) is developing the ATN simulation system which consists of three end systems (one airborne and two ground-based).

Implementation of commercial software of OSI including MHS and application software for transmission of ADS reports and ATC messages has been completed.

ENRI is planning to implement off-the-shelf Routers as a next step.

For ATN subnetworks, ENRI has three validation programs to validate the draft ICAO SARPs for AMSS, VDL and Mode S.

In addition above, Japan Civil Aviation Bureau (JCAB) is studying operational requirements to prepare implementation of ATN environment into Japan.

4.2.4 EURATN Demonstrator Network

Forrest Colliver briefed the EURATN validation activities. The EURATN (European ATN) Project is a project to develop a demonstrator ATN Network in Europe for support of ATN validation, interoperability testing and experimentation.

Within EURATN, 11 ATN systems (5 BISs and 6 ESs including airborne systems) will be interconnected at 3 sites (Paris, Toulouse, Amsterdam) via Ethernet LANs, X.25 WANs (SITA Network, and Transpac, the French public X.25 PSDN). A satellite link will be established via the Aussaguel GES and the SITA Data-3 Gateway. Demonstrations, including flight testing, are planned during 1994 and 1995.

Technical Specifications of the EURATN demonstrator were completed by October 1993, at which time software development was started. Initial router integration started during March 1994, with the Merit IDRP integration starting during July 1994. The initial integration of a free-text application and Transport Service Traffic Generator started during July 1994.

By the end of August 1994, successful tests have been conducted between 3 routers implementing the Merit IDRP, and between end-systems implementing the Free-Text Application over Transport Class 4, CLNP, and the Data-3 satellite link.

4.2.5 France

Forrest Colliver briefed the meeting on the validation activities taking place in France in addition to the French participation in the EURATN Project. The French STNA is progressing on development and procurement of ADS trials equipment, to be used in joint validation exercises with the UK, and with States participating in the North Atlantic Unified ADS Trials. This equipment will include a Data 2 compliant Satellite Data Unit in conjunction with a SITA Data 3 gateway, the implementation of TP4, CLNP and ES-IS in the end-systems on the ground and in the aircraft, the deployment of modified EURATN Routers (including both the mobile SNDCF and the Merit IDRP) in the ground infrastructure and the implementation of a limited context management function in the air and ground end-systems. The ground-based ADS end-system has been designed and built by the French STNA, and the airborne ADS end-systems to be used are expected to be procured from a commercial avionics supplier for installation in aircraft operated by Air France and other interested airlines.

4.2.6 Eurocontrol Validation Database

Jean-Michel Crenais briefed the progress on the ATN Requirements Database Activities. Eurocontrol produced a first version of the ATN Requirements Database at the beginning of July 1994. This database has been produced with Microsoft Access 1.1 database software. The database contains approximately 3600 entries listed in one table called the 'Requirements' table. Entries originating from the APRLs and MORTs tables are also used as entries for more detailed tables containing specific APRLs and MORTs information. Additional tables describing the categorization of the database entries were also generated, as well as predefined queries allowing analysis and maintenance of the database.

The database has been produced automatically from the annotated ATN Manual text (based on the ATN Manual Validation Draft, dated 19 November 1993). Each entry has been categorized as being either a Requirement, a Recommendation, an Option, a Note, a Guidance, or a User Requirement. Then additional categorizations have been added such as the type of systems, the protocol, the subnetwork type, etc. an entry is related to, and at last relationships between entries have been added allowing the creation of "dependency trees".

The resulting ATN Requirements Database is now under revision by a EURATN team. All entries have been cross-checked with the ATN Manual text in order to identify some possible omissions, or wrong entries. This reviewing work mainly resulted in the identification of missing relationships between entries but very few mistakes were actually identified. The next step of this review will now consist in the review of the various categorization of each entry. Then all possible defects in the ATN Manual which were encountered during the creation of this database will be recorded in Defect Reports or Change Proposals for discussion and resolution by the ATNP/WG2.

The first version of this reviewed database is planned to be delivered for consideration at the next WG2 meeting, during October 1994.

4.3 Agenda Item 3: Report on Status/Issues Related to ATN Manual

Steve Van Trees briefed the group on the status of the harmonization of the draft ICAO ATN Manual (Second Edition) provided by Viktor Iatsouk at ATNP/1 (ATNP/1-WP-4) with the ATN Manual Validation Copy (19th November 1993) produced by a group of experts in November of 1993 which more directly reflects the explicit agreements of SICASP/5. This latter document is being referred to as the "ATN Manual Validation Copy " as it is the only material available that States could use to begin the validation process.

Steve Van Trees met with Viktor Iatsouk in Montréal earlier this summer (shortly after ATNP/1) and resolved all known discrepancies with Viktor. The main cosmetic issue was that most of the graphics had problems; however, these have been resolved and Steve returned to Montréal during September 1994 with the updated graphics.

One error in the ATN Manual Validation Copy with respect to the text agreed by SICASP was recognized during this review. In section 5.6.1, it was noted that a change relating to a paragraph on System Management managers was improperly applied to a paragraph on Agents. It was agreed to resolve this issue via means of the defect reporting mechanism described later in this report.

Various changes that Viktor made in his capacity as ICAO Secretary were reported to the meeting, including changes to headings to reflect that the material is a Manual and not SARPs and Guidance Material and the transposition of AINSC vs. AISC for Aeronautical Industry Service Communications.

Based on discussion with Viktor, it is hoped that ICAO Manual (Second Edition) text will be finalized during mid-September.   Based on this discussion, an annotated version of the 19 November 1993 ATN Manual Validation Copy will be renamed Version 0.0 of the draft ATN SARPs and Guidance Material. Defect Report(s) to align the Version 0.0 draft SARPs with the final text of the ICAO Manual (Second Edition) would be generated with the resulting SARPs being designated as Version 1.0 of the draft ATN SARPs and Guidance Material. If stable material is not available from ICAO within a fixed time (it was proposed that this be mid-December 1994), it was agreed that Version 1.0 of the draft ATN SARPs and Guidance Material would be created based on the best information regarding the ICAO ATN Manual (Second Edition) contents.

Defect Reports (in addition to those related to alignment with the ICAO Manual (Second Edition)) may be generated against the Version 0.0 of the draft ATN SARPs and Guidance Material and presented to WG2. These defect reports would be reviewed by the WG and where agreed would be queued until such time Version 1.0 of the draft ATN SARPs and Guidance Material were available. Application of these agreed defect reports to Version 1.0 of the draft ATN SARPs and Guidance Material would result in a Version 2.0 of the draft SARPs which would then, it is proposed, be presented to the second meeting of WG2.

Version 0.0 will be brought to the San Diego WG2 meeting along with the Defect Report(s) required to align it with the final text of the ICAO ATN Manual (Second Edition) necessary in order to create Version1.0. Version 0.0 will be dated 30 August 1994 and the only differences between this version and the ATN Manual Validation Copy will be the revised headers, the annotations, a new title page and a new Foreword.

4.4 Agenda Item 4: Methods Employed to produce ATN SARPs

Discussion under Agenda Item 4 resulted in an agreement to reference the 19 November 1993 issue of the ATN Manual (i.e. the ATN Manual Validation Copy) as Version 0.0 of the Draft ATN SARPs and Guidance Material. A version of the draft SARPs and Guidance Material completely consistent with the ICAO ATN Manual (Second Edition) will be referenced as Version 1.0 of the Draft SARPs. Version 1.0 will be viewed as the baseline SARPs against which changes will be reported to ATNP/2. Therefore, the first accepted Defect Report(s) will be that (those) which bring(s) Version 0.0 in alignment with the final text of the ICAO ATN Manual (Second Edition).

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           12 October 1994

In addition to the various ATM/N Packages (e.g. CNS\ATM Package No. 1) which will be defined by ATNP WG1, it was agreed that critical path items (in addition to those required to support the agreed Packages) central to the long range ATN concept should be identified by Working Group 2. These items, while not necessarily required for early ATM/N packages, are necessary for successful migration to a full ATN. Examples of such items include, but are not limited to, quality of service and security based forwarding in CLNP, and the home and backbone concept central to the scalability of the ATN mobility solution.

The meeting also discussed and agreed that States/Organizations should be requested to present proposed ATN operational requirements to Working Groups 1, 2 and 3 as appropriate. Where applicable, these operational requirements will form the 'parents' of all ATN technical requirements and will be captured in both the ATN Requirements Database and in Version n.m ATN SARPs and Guidance Material. In this way, ATN validation can address ATN suitability to States' needs.

The meeting agreed that the Version n.m ATN SARPs and Guidance Material will evolve from the Version 0.0 to the final draft ATN SARPs and Guidance Material through a series of Change Proposals based on defect Reports and Operational Requirements Change Requests. This 'final draft ATN SARPs and Guidance Material' will include all ATN Requirements irrespective of their validation status. The document will serve as a product to ATNP/2 and is referenced as 'Product 1' in this report. The intent of maintaining the evolution of the Draft ATN SARPs and Guidance Material is to capture any changes to the ATN concept resulting from validation activities. Product 1 would be suitable for publication as a future edition of the ICAO ATN Manual (3rd Edition ?).

It is proposed that 'Product 2' to nr provided to ATNP/2 is a version of the draft ATN SARPs and Guidance Material including all validated ATN requirements, which must, as a minimum, include all ATN requirements necessary for the agreed initial ATM\N Packages (e.g. CNS\ATM Package No 1). Additionally, Product 2 will include requirements which, while not necessary for the initial Packages, have been validated during the validation period. Product 2 will be derived from Product 1 via a set of mappings of ATN package designation, critical path ATN designation, and validation status of individual ATN requirements.

4.5 Processes and Tools for ATN Validation Support

Agenda Item 5 comprised a comprehensive discussion on the processes to employed for validation of the ATN and production of ATN SARPs, and on the tools to support that validation. The result of this discussion was the production of the following items for consideration by ATNP/WG2:

1. A proposed process flow diagram (given in Figure 1) for the validation of the ICAO ATN Manual (second edition) and for the production of ATN SARPs and Guidance Material;

2. A proposed process flow diagram (given in Figure 2) for technical and policy decision-making regarding ATN Manual validation and production of ATN SARPs and Guidance Material;

3. Proposed additions to the ATN Requirements Database;

4. Proposed use of ATN mailing lists and validation archive.

The results of these discussions are detailed in the following sections of this report.

4.5.1 Definitions

4.5.1.1 ICAO ATN Manual 2nd Edition

This term is used to refer to the document that ICAO intends to publish in the near future based on SICASP/5 Recommendation 3/1. It will be the result of ICAO applying the changes agreed at SICASP/5 (SICASP/5-WP/55) to the draft September 1st 1993 version of the Manual text that was presented to SICASP/5 as SICASP/5-WP/7. It is understood that ICAO will make additional changes to these in order

to make the material suitable for publication as an ICAO Manual. A draft version of the ICAO ATN Manual (2nd Edition) was presented to ATNP/1 as ATNP/1-WP/4.

4.5.1.2 ATN Manual Validation Copy (19 November 1993)
Recognizing that the ICAO machinery would take a considerable amount of time to publish the "ICAO ATN Manual (2nd Edition)" an ad-hoc group of experts created (during the SICASP/5 meeting) what is being termed the "ATN Manual Validation Copy (19th November 1993)". This was created by applying the SICASP/5 agreed changes (SICASP/5-WP/55) to the draft September 1st 1993 version of the Manual text that was presented to SICASP/5 as SICASP/5-WP/7. This validation copy has been the basis of ATN validation activities that are being conducted by various States and Organisations.   ATNP/1 noted a number of differences between the 'Validation Copy' and ATNP/1-WP/4 and was informed that the ICAO Secratariat will resolve all differences.

4.5.1.3 Version n.m ATN SARPs
Each version of draft SARPs and Guidance Material shall be explicitly referenced as 'n.m'.   This term refers to the currently available version of the ATN SARPs and Guidance Material.

4.5.1.4 Defect Report
The format for a Defect Report is defined in this report. Any defects found in the current version of the draft ATN SARPs and Guidance Material shall be reported by submitting a defect report. Identified defects may be the result of a paper analysis, simulation activities or implementation activities. A defect report may be submitted by any ATNP Member or Advisor (with his Member's approval).

4.5.1.5 Operational Requirement Change Request
The format for an ORCR is defined in this report. The intent of the ORCR is to provide a means of allowing ATNP Members/Advisors of identifying and defining new Operational Requirements that are not being fulfilled by the current version of the draft n.m ATN SARPS and Guidance Material. An ORCR may either be directly presented to WG2 or result in a Defect Report which is then presented to WG2.

4.5.1.6 Change Proposal
The format for a Change Proposal is defined in this report. Change Proposals will be developed following WG2 acceptance that a Defect Report or ORCR requires to be resolved. However, in the interests of progress DR or ORCR originators are encouraged to submit draft CPs along with their DR.

4.5.2 Process Flow Diagram

4.5.2.1 Development Process for SARPs and Guidance Material
The primary objective of WG2 is to develop draft SARPs and Guidance Material for the ATN using the ICAO ATN Manual (Second Edition) as a baseline. This would, inter alia, ensure that the final Version n.m of the draft ATN SARPs and Guidance Material would be as close as possible to the text of the ICAO ATN Manual (Second Edition), thereby facilitating the ICAO translation process of the final draft SARPs. Given that the final text of the ICAO ATN Manual (Second Edition) was not available at the time of the ad-hoc meeting it was proposed that Version 0.0 of the draft ATN SARPs and Guidance Material be baselined on the 'ATN Manual Validation Copy'. The only differences between the ATN Manual Validation Copy and the Version 0.0 draft SARPs is a new title cover page, annotations, a revised foreword, revised headers/footers and a new-date (30/8/94). No other changes of either a technical or editorial nature were discussed. The meeting agreed that Version 0.0 of the draft SARPs will be presented to WG2 as a Working Paper.

Working Group 2/1 (WG2/1) will also be presented with a Defect Report which will propose all changes necessary to the Version 0.0 draft SARPs and Guidance Material in order to align it with the final text of the ICAO ATN Manual (Second Edition). This assumes that ICAO has the final text of this latter

document available before the start of the WG2 meeting. It should be noted that not all changes proposed in this Defect Report may be applicable to draft SARPs such as removing the word 'provisions' from the Appendix headings. Applying all WG2 approved changes to Version 0.0 of the draft SARPs will result in Version 1.0 of the draft SARPs being created. Should it happen that the ICAO final text is not available to the WG2 meeting then WG2 will be requested to pre-approve certain of the anticipated changes that will be necessary. In the interest of progress these would then be implemented by 15 December 1994 at the very latest based on the best information on the ICAO Manual (Second Edition) available at that point in time.

In addition to reviewing the 'alignment' Defect Report the WG may be presented with one or more technical and/or editorial Defect Reports which will have been made against Version 0.0 of the draft ATN SARPs. WG2 will decide whether to accept or reject and/or defer each of these. Those that are accepted for implementation will be checked for consistency with the revised Version 1.0 draft SARPs and then implemented to create Version 2.0 of the draft SARPs. This Version 2.0 of the draft SARPs will be presented to the second meeting of WG2 along with any technical defect reports that may have been generated in the meantime.

In order to improve the efficiency of WG2 and expedite the Defect Report resolution process it is proposed that any Defect Report be made available to WG2 members at least two weeks before the start of any WG2 meeting.

After a period of time in which a number of WG2 meetings have taken place that have continually refined the Version n.m draft ATN SARPs and Guidance Material it is envisaged that the ultimate WG2 meeting before ATNP/2 will review and approve two products. The first of these, termed as 'Product 1' will be the complete set of draft SARPs which defines the 'end-state' operation of the ATN, it will therefore include some requirements which have been validated and some that have not. The second product, termed 'Product 2' will be a subset of (and be automatically generated from) Product 1. It will include only requirements that have been validated to the level necessary as determined by the WG. As a minimum this Product 2 must define all requirements that are required for the implementation of the CNS/ATM Package 1 as defined at the first series of ATNP WGs and any subsequent packages e.g. CNS/ATM Package 2 that were also defined at WG2-1 for definition by ATNP/2. Product 2 may also include requirements that while not necessary for the defined packages may have been deemed to be necessary for the long term successful implementation of the ATN provided that they have been validated. Though not directly related to the SARPs development process the meeting agreed that a third product will also be needed to be presented to ATNP/2. This (termed as 'Product 3') will be an ATN Validation Report that will document the results of validation activities that have been performed by States/Organizations over the validation period. It is hoped that this Validation Report may be able to cross-reference to the Requirements Database and vice-versa.

4.5.2.2 Working Group and CCB Decision Process

The meeting developed a process flow diagram (Figure 2) which outlines a procedure to be followed by ATNP/WG2 to record/process/trace all Defect Reports (DR), Operational Requirements Change Requests (ORCR), and Change Proposals (CP) which will be generated in the context of the ATN Manual validation work. The formats for each of these is defined later in this report.

Defect Reports forms will record and describe any editorial and/or technical defect identified in the text of a Version n.m draft ATN SARPs & Guidance Material..

Operational Requirements Change Request forms will record and describe a "high-level" requirement (e.g. specific performance requirement in terms of routing stability) which is proposed to be added or modified in the text of a Version n.m draft ATN SARPs & Guidance Material. Such Change Requests might be issued from external inputs (such as ATNP/WG1 Working Papers) and may result in the creation of new Defect Reports if it comes out that the new requirement cannot be met with the current technical requirements contained in the Version n.m draft ATN SARPs document.

Change Proposals will typically be created in response to WG2 approved Defect Reports and Operational Requiremenst Change Requests. They should include the propsoed modifications/additions/deletions to the draft n.m ATN SARPs and Guidance Material in a format that will facilitate their direct implementation once approved by the Working Group.

In order to limit the generation of Defect Report and Operational Requirement Change Requests to only mature proposals, it is highly recommended that the topics covered by these forms be first discussed in the 'atn-internet-technical' mailing list among interested ATN experts (the use of this facility is described later in this report). Once a common understanding of the issue raised in the discussion is reached, a DR or ORCR number must be requested from the 'ATN Validation Archive' Configuration Manager. The associated electronic form is filled in accordingly and sent to the 'ATN Validation Archive' Configuration Manager who is in charge of storing the form in the proper Archive Directory and posting an information message reporting the creation of the new form in the 'atn-internet-technical' mailing list.

Archived DR and ORCR are then reviewed by WG2 (or a sub-group if deemed necessary by the WG).

Working Group 2 (or a sub-group) will decide whether or not the archived DR or ORCR can be considered as a valid need for change to the Version n.m draft SARPs and Guidance Material document. Subsequent to this decision, each reviewed DR and ORCR will then be updated accordingly (i.e. new Status field, and possibly addition of 'Recommended Action(s)).

It is proposed that the WG review the need for a sub-group (i.e. the Change Control Board as defined in Appendix C to the ATNP Report on Agenda Item 5). When considered necessary by the WG it is proposed that the CCB convenes in order to review DRs, ORCRs, and CPs in order to formulate their recommendations to the WG. The ad-hoc meeting did not discuss the detailed structure and mode of operation of the CCB, but it may be envisaged that this group be formed with ATN technical experts who meet as necessary just before all WG2 meetings, in order to be in a position of reporting their recommendations to the Working Group during every meeting. Additional CCB meetings could be organized between WG2 meetings if deemed necessary by the WG. All DRs, ORCRs, and CPs to be reviewed by the WG\CCB should be made available to its members at least 2 to 3 weeks before the decision meeting.

Each time the WG recognizes a DR or ORCR as valid (i.e. it actually identifies a need for a change in the Version n.m draft ATN SARPs and Guidance Material document, this may be based on a CCB recommendation), interested parties should then develop a Change Proposal to describe required elements of the solution and/or change text.

The development of such a change will consist of:

   a)   applying the WG recommended action (analysis, simulation, and/or implementation) in order to elaborate and validate a solution to the reported defect or change request.

   b)   filling in a Change Proposal (CP) form once the solution to fix the defect or satisfy the change request has been validated.

Change Proposal forms will record and describe all editorial and/or technical modification to the text of the Version n.m draft ATN SARPs and Guidance Material document. Such forms will trace the origin of the proposed change (DR or ORCR), describe the change itself, and explain how it has been validated. CPs should also be discussed in the 'atn-internet-technical' mailing list before being issued through the same process as DRs and ORCRs (i.e. request CP number to Archive Configuration Manager, send the CP, store it in the Archive and post an information message).

All new CPs should be created with a 'Submitted' status as long as they have not been formally approved by WG2 .

Note.— WG2/1 may decide to give the CCB the ability to informally approve CPs and issue Agreed Changes before formal WG2 approval. Such decisions would result in a Version n.m of the draft ATN

SARPs and Guidance Material document, whereas if WG2 approves Changes to Version n.x of the document, it will result in a new Version (n+1).0 version.

All pending CPs will be reviewed by the WG/CCB, which may either Accept, Reject, or Suspend it. If several CPs are proposed as a solution to one or several DR(s) or ORCR(s), the WG/CCB will select the most appropriate.

All reviewed CPs will then be updated accordingly (i.e. new Status).

All Accepted CPs will then be proposed to the WG2 for formal agreement and will then be considered as Agreed Changes.

All Agreed Changes have to be applied to the Version n.m draft ATN SARPs and Guidance Material document and to the ATN Requirements Database.

Changes to the Version n.m draft ATN SARPs and Guidance Material document will take the form of change pages only (where practical), and will result in either Version n.(m+1) or Version (n+1).0 version of the document depending on the concordance with a WG2 meeting (i.e. WG2/n will issue version n.0, and extra versions issued before WG2/n+1 will be referred to as Working Draft n.m).

It is proposed that the same numbering system will be applied to the ATN Requirements Database (i.e. WG2/1 will issue version 1.0 of the database, WG2/n will issue version n.0, and all intermediate versions will be named version n.m).

All WG2 agreed Change Proposals will be reported to the ATN Panel Secretary to be applied to the current baseline version of the ATN Manual.
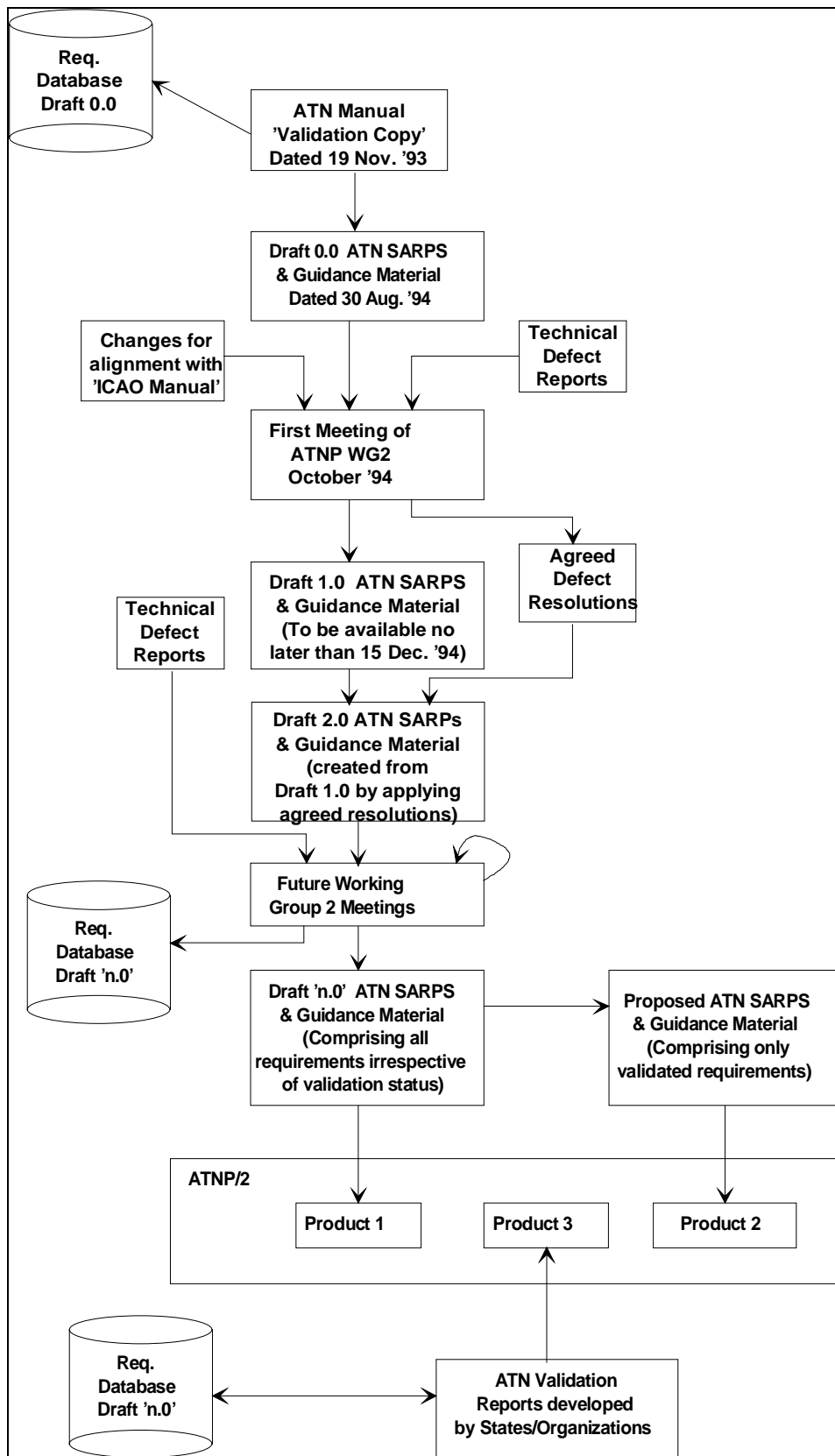
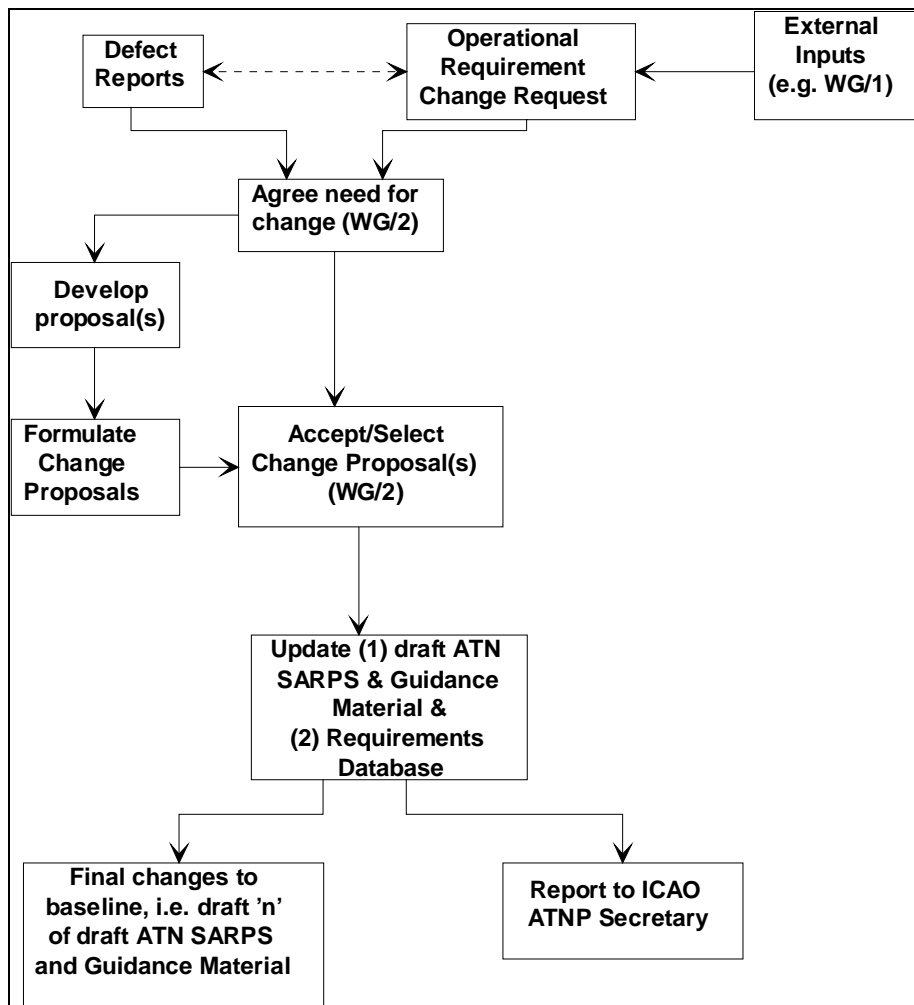Figure 1: Development Process for ATN SARPs and Guidance Material

Figure 2: Change Control Procedure for ATN SARPs and Guidance Material

4.5.3 Proposed Additional Fields to ATN Requirements Database

In order to support the needs of the processes described in the previous section, it was agreed to propose the addition of the following items as database fields:

Validation Methodologies This field identifies tool(s) and methodology(ies) to be applied in the validation process (i.e. analysis, simulation, prototyping, implementation) for each ATN requirement defined in the database. It may transpire that any one requirement may need to be validated by a combination of such methodologies.

Validation Status This field identifies whether the validation process for a particular ATN requirement has been completed or not. This information is used to map between Product 1 and Product 2.

Request Number When a requirement is changed by results of Defect Reports, Operational Requirements Change Requests and/or Change Proposals, the appropriate report identification number will be put into this fields as a reference.

Package Number	It is proposed that this field be used to indicate the ATM/N Package number (e.g. CNS\ATM Package No 1) to which the requirement relates, if any.
Critical Path Item	It is proposed that this field be used to identify the 'critical path' ATN Requirements which are necessary to be validated early to ensure for a successful migration to the end state ATN.

4.5.4 Report Forms

Further discussion revealed that certain forms would be necessary in order to support the validation process. Proposals for these forms are contained in the following sections.

4.5.4.1 ATN Defect Report Form

ATN Defect Report

Defect Report Number:

Date of Issue:

State/Organization:

Author Name:

Author E-mail Address:

ATN SARP Draft version:

Reference: [requirement number/section & page/section &figure/section &table]

Summary:

Discussion:

Impact on Requirements:

Change Proposal Reference:

Status: [SUBMITTED/REJECTED/ACCEPTED/WITHDRAWN]

CCB Reference: [number/date]

CCB Recommended action:

4.5.4.2 Comments on the Defect Report Form

Defect Report Number:	This is the number allocated by the configuration manager of the defect report database
Date of Issue:	Date at which the report is sent to the configuration manager
Reference:	This is either the requirement number in the database , or in no specific requirement can be referenced , this is the section & page/section &figure/section &table of the ATN SARP draft that present a defect.
Summary:	Brief presentation of the problem

Discussion:	Detailed description of the problem and impacts on other requirements
Impact on Requirements:	List of database entries (Requirements, recommendation, options, etc.) which are involved
Change Proposal(s):	This is the list of all submitted change proposals which provide a solution to this problem.
Status:	This status can be:
	SUBMITTED, i.e. the change has not been reviewed yet by the Change Control Board
	REJECTED, i.e. the CCB did not recognize the content of the report as being a defect
	ACCEPTED, i.e. the CCB recognize that it is a defect (see then recommended action)
	WITHDRAWN, the problem need further investigation and when clarifications will be possible, a new defect report will be issued
CCB Reference:	Identification of the CCB meeting where the problem was reviewed, or the date at which the status decision was taken
Recommended Action:	Action recommended by the CCB in order to find a solution or validate solutions for this problem.

4.5.4.3 ATN Operational Requirement Change Request

ATN Operational Requirement Change Request

Operational Requirement Change Request Number:

Date of Issue:

State/Organization:

Author Name:

Author E-mail Address:

ATN SARPs Version:

Reference: [requirement number/section & page/section &figure/section &table]

Summary:

Discussion:

Impact on Requirements:

Requirement Reference: Type: add/change/suppress

Associated Defect Reports:

Means of Validation: [analysis/simulation/implementation]

Status: [SUBMITTED/REJECTED/ACCEPTED/WITHDRAWN]

CCB Reference: [number/date]

CCB Recommended Action:

4.5.4.4 Comments on the ORC Request Form

ORC Request Number:	This is the number allocated by the configuration manager of the defect report database
Date of Issue:	Date at which the report is sent to the configuration manager
Reference:	This is either the requirement number in the database , or in no specific requirement can be referenced , this is the section & page/section &figure/section &table of the ATN SARP draft that present a defect.
Summary:	Brief presentation of the problem
Discussion:	Detailed description of the problem and impacts on other requirements
Impact on Requirements:	List of database entries (Requirements, recommendation, options, etc.) which are involved
Change Proposal(s):	This is the list of all submitted change proposals which provide a solution to this problem.
Status:	This status can be:

SUBMITTED, i.e. the change has not been reviewed yet by the Change Control Board

REJECTED, i.e. the CCB did not recognize the content of the report as being a defect

ACCEPTED, i.e. the CCB recognize that it is a defect (see then recommended action)

WITHDRAWN, the problem need further investigation and when clarifications will be possible, a new defect report will be issued

CCB Reference: Identification of the CCB meeting where the problem was reviewed, or the date at which the status decision was taken

Recommended Action: Action recommended by the CCB in order to find a solution or validate solutions for this problem.

4.5.4.5 ATN Change Proposal

ATN CHANGE PROPOSAL

Change Proposal Number:

Date of Issue:

State/Organization:

Author Name:

Author E-mail Address:

ATN SARPs Version:

Reference: [requirement number/section & page/section &figure/section &table]

Related Defect Report or ORC Request:

Summary:

Discussion:

Impact on Requirements:

Means of Validation: [analysis/simulation/implementation]

Status: [SUBMITTED/REJECTED/ACCEPTED/WITHDRAWN]

CCB reference: [number/date]

CCB Recommended action:

4.5.4.6 Comments on the Change Proposal Form

Change Proposal Number: This is the number allocated by the configuration manager of the defect report database

Date of Issue: Date at which the report is sent to the configuration manager

Reference:	This is either the requirement number in the database , or in no specific requirement can be referenced , this is the section & page/section &figure/section &table of the ATN SARP draft that present a defect.
Summary:	Brief presentation of the problem
Discussion:	Detailed description of the problem and impacts on other requirements
Impact on Requirements:	List of database entries (Requirements, recommendation, options, etc.) which are involved
Change Proposal(s):	This is the list of all submitted change proposals which provide a solution to this problem.
Status:	This status can be :
	SUBMITTED, i.e. the change has not been reviewed yet by the Change Control Board
	REJECTED, i.e. the CCB did not recognize the content of the report as being a defect
	ACCEPTED, i.e. the CCB recognize that it is a defect (see then recommended action)
	WITHDRAWN, the problem need further investigation and when clarifications will be possible, a new defect report will be issued
CCB Reference:	Identification of the CCB meeting where the problem was reviewed, or the date at which the status decision was taken
Recommended Action:	Action recommended by the CCB in order to find a solution or validate solutions for this problem.

4.6 Use of the ATN Mailing Lists and the ATN Validation Archive

As reported during the first ATN Panel meeting, certain ATN validation tools have been established at CENA/Toulouse (France), and are available for use by ATN validation staff having access to the Internet. These tools comprise the ATN Validation Archive, and the two ATN-Internet electronic mail distribution lists.

These tools are intended for use to support the communication and decision-making processes described in the preceeding sections.

4.6.1 ATN Validation Archive

The ATN Validation Archive is an enhanced-functionality password-protected **ftp** server, located at the address:

```
        manix.cenatls.cena.dgac.fr
        (IP Address: 143.196.1.34)
```

The archive is accessed via the following ftp log-in procedure:

```
        Name:       atnvalid
        Password:   upplval
```

After log-in is complete, the user sees several subdirectories, described in the following paragraphs. The "**incoming**" subdirectory is read/write; the other directories are read-only. A file "**dir.txt**" is located at this level in the directory structure to indicate the contents of the directory system as of the time/date stamp indicated on that file.

The general principle for use of the archive is that if a submission is desired to be made available to other validators, that submission (document file, spreadsheet file, database file, etc.) is uploaded to the "**incoming**" subdirectory of the ATN Validation Server, using binary file transfer mode. This upload should be in the form of a ZIP archive file containing:

   a) the file or files of interest, and

   b) an explanatory "README" file detailing the content of the ZIP archive, its source, and relevant contact information for the submitter of the ZIP archive.

The configuration manager at CENA is automatically notified of the arrival, and places the ZIP archive file into one of the other three subdirectories, as is appropriate. If a ZIP archive file is submitted lacking the README file noted above, the configuration manager, at his discretion, may delay archiving this file until such time as the ZIP archive is deemed to be complete (i.e. until the README file is supplied). Following successful transfer of the incoming file to the appropriate archive subdirectory, the configuration manager will then send an email message via the "**atn-internet-general**" mailing list (described later in this document) to announce the presence of the new file. It is assumed that all interested parties are members of this mailing list, and that in general, administrative communications related to the ATN Validation Archive wil be conducted via this mailing list.

Note: The operation of this archive is essentially mechanical, i.e. the CENA configuration manager makes no judgement regarding the content of the files, other than to try to detect files corrupted during the upload transfer. Further, it is assumed that once the procedures for decision-making are agreed within the validation community, the CENA configuration manager will maintain the archive in a manner supporting the decisions coming from that process, i.e. making approved versions available, clearly delineating draft material from approved material, etc.

4.6.1.1 Content of "val-db"
This subdirectory contains the current draft version of the ATN Validation Database, and associated documentation files. These files are currently in review, having been prepared by Eurocontrol for consideration by ATNP/WG2.

The database files are in Microsoft Access 1.1 format, and the documents are in Microsoft Word for Windows 2.0 format.

4.6.1.2 Content of "doc-gen"
This subdirectory is provided for the archiving of draft and final documents of a general nature relating to the validation and technical analysis process.

4.6.1.3 Content of "draftsrp"
This subdirectory is provided to archive the draft versions of the ATN SARPs and Guidance Material produced by the ATN Panel Working Group. This archive contains zip file archives of the name format "srp-n$m.zip", where "n" is replaced by the appropriate major revision index and "m" is replaced by the appropriate minor revision index.

4.6.1.4 Content of "incoming"
This subdirectory is a buffer directory, for deposit of files uploaded to the archive as previously described.

4.6.1.5 Content of "tools"
The subdirectory "**tools**" of the ATN Validation Group contains the compression and decompression tools to be used on all the files stored in the archive. Executables stored in "**tools/unix**" may be run on the unix operating system. Those in "**tools/msdos**" may be run on the MS-DOS operating system.

4.6.1.5.1 Content of "tools/unix"

These utilities are executable files that run on the unix operating system. Their operation is compatible with that of the MS-DOS tools that can be found in "**tools/msdos**".

zip	ZIP File Compression Utility (Version 2.01)
unzip	ZIP Decompression Utility (Version 5.1)

4.6.1.5.2 Content of "tools/msdos"

These utilities are executable files that run on the MS-DOS operating system. Their operation is compatible with that of the the unix tools that can be found in "**tools/unix**".

pkz204g.exe	PKZIP (Version 5.04g: compression and decompression)
zip20x.zip	compression of zip.exe (Version 2.01)
unzip51x.exe	self-extracting compression of unzip.exe (Version 5.1)

4.6.2 ATN Electronic Mailing Lists

4.6.2.1 Overview

Two email forwarding lists have been established to support technical interchange and validation activities regarding the ATN Internet:

> **atn-internet-general@cenatls.cena.dgac.fr**

> **atn-internet-technical@cenatls.cena.dgac.fr**

If electronic mail (email) is sent to either of these list addresses, that email will be forwarded to all subscribers to the list to which the email is addressed.

4.6.2.2 Conventions for List Usage

In general, certain conventions for use of the two ATN Internet mailing lists apply.

The **atn-internet-general** list should be used, for example, for the exchange of:

1. information of an administrative nature,

2. information concerning the ATN validation process and associated decision-making,

3. announcements concerning ATN implementation and demonstration activities, standards activities, related meetings, etc.

The **atn-internet-technical** list should be used, for example, for:

1. detailed technical exchanges among ATN implementors and validators, and

2. detailed discussion of proposed solutions to problems identified during the validation process.

4.6.2.3 Subscription Procedure

To subscribe to either of these lists, send an email request to:

> **majordomo@cenatls.cena.dgac.fr**

The email should contain the following text, in the message body, with **<list name>** replaced by the actual list name:

> **subscribe <list name>**

> **end**

More than one subscribe command may be contained in one email message. The address from which the email subscription request was sent will be added to the requested list(s), and a response telling the user how the list operates will be sent as a confirmation of the new subscription(s).

5. Conclusions and Recommendations

This report was compiled, using inputs received from meeting participants, to document the conclusions reached and recommendations to be offered to the first meeting of Working Group 2. It is recommended:

1. that the Working Group endorse the proposed process for production of an ATN SARPs and Guidance Material document, using the ATN Manual (second edition) as a baseline for Draft 1.0 of that document;

2. that the Working Group endorse the use of the referenced ATN Requirements Database, with the proposed additions, for the collection, categorization and analysis of ATN requirements;

3. that the Working Group endorse the use of the proposed forms to support the validation and decision-making process flow; and,

4. that the Working Group endorse the use of the proposed tools for electronic communication, in support of the validation and decision-making process.

The meeting agreed to have this report and its conclusion presented to the first meeting of Working Group 2, as well as to related ATNP WG meetings.