Aeronautical Telecommunication Network (ATN) Standards and Recommended Practices (SARPs)

Sub-Volume 1

Introduction and System-Level Requirements

Version 0.7

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1.0 Sub-Volume 1: Introduction and System-Level Requirements

1.1 Introduction

1.1.1 The Aeronautical Telecommunication Network (ATN) shall provide communication services and applications in support of:.

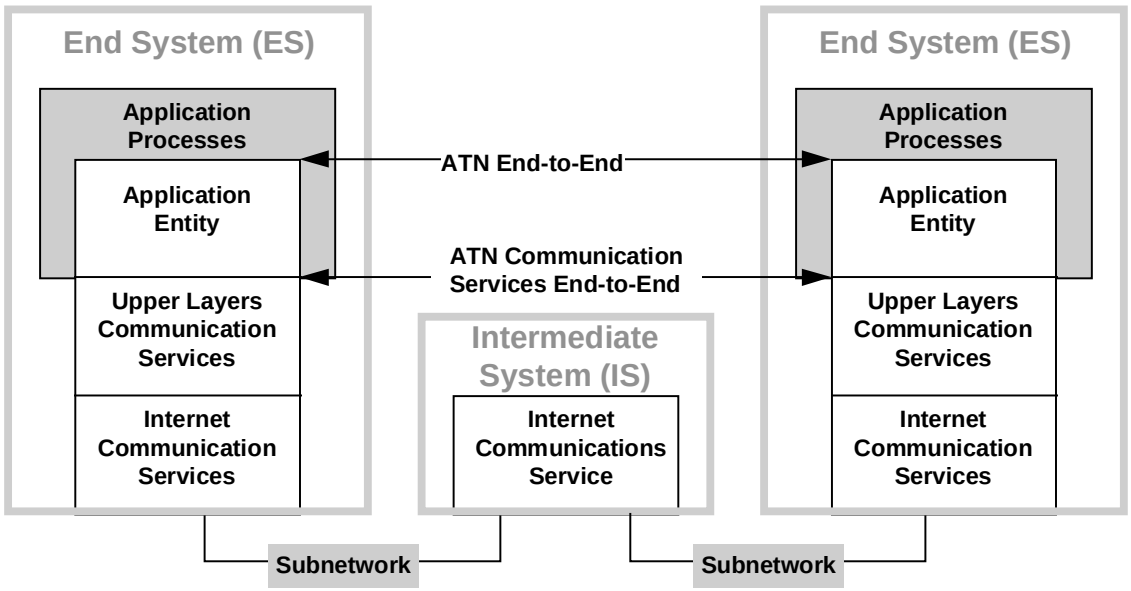
a) delivery of air traffic services (ATS) to aircraft;

b) exchange of air traffic management (ATM) information between fixed-based ATS facilities on the ground; and

c) other applications accommodated by the ATN, such as Aeronautical Operational Communications (AOC) and Aeronautical Administrative Communications (AAC).

1.1.2 The conceptual model of the ATN shall be as depicted below:

Ed Note: Amendment suggested in Figure 1.1-1: replace « ATN End-to-End » with « ATN Application Association » : the term end-to-end is not applicable to such a diagram in a store-and-forward environment



Note: Shading indicates elements outside the scope of these SARPs.

Figure 1.1-1: Conceptual Model of the ATN.

1.1.3 The ATN shall consist of the following functions:

a) Context Management (CM), (Data link initiation capability)

b) Controller/Pilot Data Communications (Controller Pilot Data Link Communications (CPDLC), includes (Pre)Departure Clearance)

c) Automatic Dependent Surveillance (ADS)

d) Automatic Terminal Information Services (ATIS) as an Flight Information Services (FIS) application

e) Inter-Centre Co-ordination (ICC) as an Air Traffic Services (ATS) Interfacility Data Communications (AIDC) application

f) ATS Message Handling Services (AMHS)

g) Upper Layers Communication Services

h) Internet Communication Services

1.1.4 Overview

Figure 1.1-2 shows an overview of these SARPs.

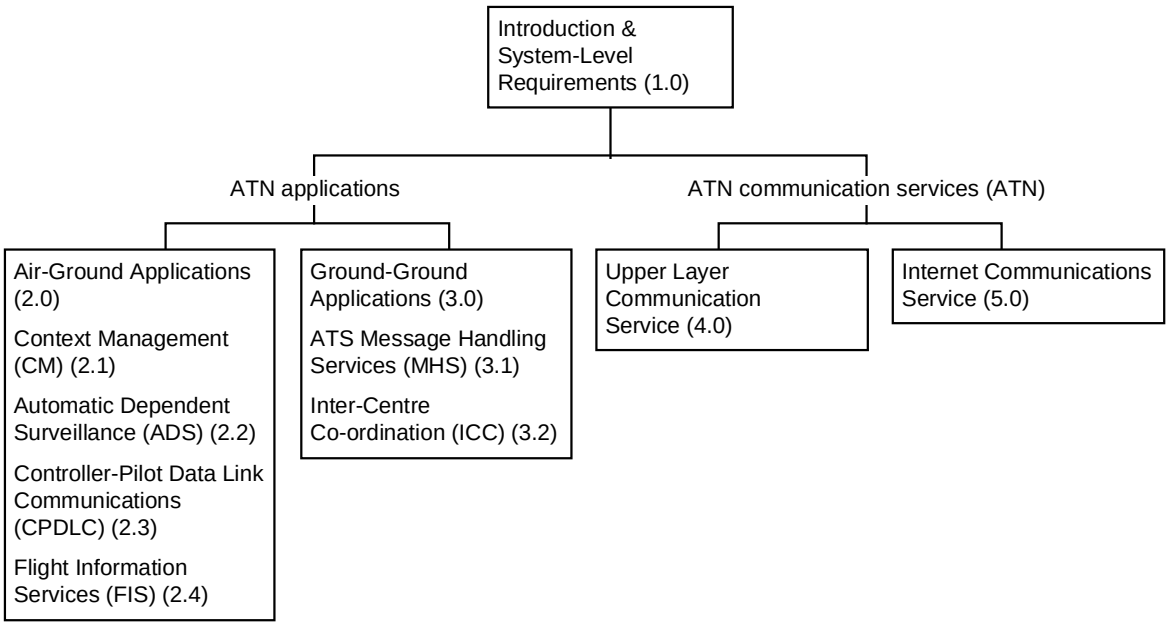


Figure 1.1-2: ATN SARPs overview.

1.2 System Level Requirements

Note.— The system level requirements are high-level technical requirements that have been derived from operational needs, technological constraints and regulatory constraints (administrative and institutional). These system-level requirements are the basis for the functional requirements, lower level requirements, and derived requirements.

1.2.1 ATN System Level Requirements

Ed note: The ATN system level requirements will be reviewed for their sequence and structure.

1.2.1.1 The ATN shall use the International Organization for Standardization (ISO) Open Systems Interconnection (OSI) standards.

1.2.1.2 The ATN shall provide a means to facilitate migration to future versions.

1.2.1.3 The ATN shall enable the transition of existing AFTN users and systems into the ATN architecture.

1.2.1.4 The ATN shall enable only the authorized ATC authority to provide ATC instructions to aircraft operating in its airspace.

1.2.1.5 The ATN shall employ policy based routing.

1.2.1.6 The ATN shall enable data communications to be carried only over authorized paths for the type of traffic specified by the user.

1.2.1.7 The ATN shall employ ATSC traffic classes in accordance with the criteria in Table 1.2-1.

Table 1.2-1: ATSC Traffic Classes

One way End-to-End Transit Delay at 95% probability (seconds)	ATSC Traffic Class
Reserved	A
Reserved	B
7.2	C
13.5	D
18	E
27	F
50	G
100	H
No value specified	No preference

1.2.1.8 The ATN shall enable communication priorities in accordance with Table 1.2-2.

Table 1.2-2. Relationship of ATN applications to communication priorities

Message Categories	ATN Application	Corresponding Protocol Priority		
		Transport Layer Priority		Internet Layer Priority
		Transport Connection Priority	TSDU Priority	CLNP Priority
Network/Systems Management		0	0	14
Distress Communications		1	1	13
Urgent Communications		2	2	12
High Priority Flight Safety Messages		3	3	11
Normal Priority Flight Safety Messages	CPDLC ADS AIDC	4	4	10
Meteorological Communications		5	5	9
Flight Regularity Communications	CM	6	6	8
Aeronautical Information Service Messages	FIS	7	7	7
Network/Systems Administration		8	8	6
Aeronautical Administrative Messages		9	9	5
<unassigned>		10	10	4
Urgent Priority Administrative and U.N. Charter Communications		11	11	3
High Priority Administrative and State/Government Communications		12	12	2
Normal Priority Administrative		13	13	1
Low Priority Administrative		14	14	0

Note:— Priorities above double line are for communications related to safety and regularity of flight.

1.2.1.9 The ATN shall enable peer to peer application exchange of information when an authorized path exists.

1.2.1.10 CNS/ATM-1 shall enable store-and-forward application exchange of information when authorized paths exist.

1.2.1.11 The ATN shall notify the appropriate application processes when no authorized path exists.

1.2.1.12 The ATN shall provide a means to unambiguously address all ATN End and Intermediate systems.

1.2.1.13 The ATN shall enable the recipient of a message to positively identify the originator of that message within a dialogue.

1.2.1.14 The ATN addressing and naming plans shall permit States and organisations to assign addresses and names within their own administrative domains.

1.2.1.15 The ATN shall support fixed and mobile systems.

1.2.1.16 The ATN shall accommodate ICAO standardized mobile subnetworks.

1.2.1.17 The ATN shall enable an aircraft Intermediate System to be connected to a ground Intermediate System via concurrent mobile subnetworks.

1.2.1.18 The ATN shall enable an aircraft Intermediate System to be connected to multiple ground Intermediate Systems.

1.2.1.19 The ATN shall enable exchange of application address information.

1.2.1.20 The ATN shall be capable of establishing, maintaining, releasing, forwarding and aborting peer to peer application associations for Context Management (CM).

1.2.1.21 A context management (4.1.1) logon and exchange of information indicating supported applications and associated network addresses shall be completed prior to initiation of an application dialogue for any of the air-ground applications defined below.

1.2.1.22 The ATN shall be capable of establishing, maintaining, releasing, forwarding and aborting peer to peer application associations for Automatic Dependent Surveillance (ADS).

1.2.1.23 The ATN shall be capable of establishing, maintaining, releasing, forwarding and aborting peer to peer application associations for Controller Pilot Data Link Communications (CPDLC).

1.2.1.24 The ATN shall be capable of establishing, maintaining, releasing and aborting peer to peer application associations for Flight Information Services/Automatic Terminal Information System (FIS/ATIS).

1.2.1.25 The ATN shall be capable of establishing, maintaining, releasing and aborting application associations for ATS Message Handling Services over the ATN (AMHS).

1.2.1.26 The ATN shall be capable of establishing, maintaining, releasing and aborting peer to peer application associations for Inter-Centre Co-ordination/ATS Interfacility Data Communications Application (ICC/AIDC).

1.2.1.27 The ATN shall reference time based on Co-ordinated Universal Time (UTC).

Ed note. A “shall” will be added to address the integrity expected from the “ATN end-to-end.” (See Figure 1.1-1).

1.3 References

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ISO/IEC ISP 11188-1: 1995	Information Technology - International Standardized Profile - Common upper layer requirements - Part 1: Basic connection oriented requirements.
ISO/IEC 11570:1992	Information technology – Telecommunications and information exchange between systems – Open Systems Interconnection – Transport protocol identification mechanism
ISO/IEC 11577:1995	Information technology – Open Systems Interconnection – Network layer security protocol
ISO/IEC DIS 11586-1	Information technology – Open Systems Interconnection – Generic Upper Layers Security – Part 1: Overview, Models and Notation
ISO/IEC DIS 11586-2	Information technology – Open Systems Interconnection – Generic Upper Layers Security – Part 2: Security Exchange Service Element (SESE) Service Specification

ISO/IEC DIS 11586-3	Information technology – Open Systems Interconnection – Generic Upper Layers Security – Part 3: Security Exchange Service Element (SESE) Protocol Specification
ISO/IEC DIS 11586-4	Information technology – Open Systems Interconnection – Generic Upper Layers Security – Part 4: Protecting Transfer Syntax Specification
ISO/IEC ISP 12059-0:1995	Information technology – International Standardized Profiles – OSI Management – Common information for management functions – Part 0: Common definitions for management function profiles
ISO/IEC ISP 12059-1:1995	Information technology – International Standardized Profiles – OSI Management – Common information for management functions – Part 1: Object management
ISO/IEC ISP 12059-2:1995	Information technology – International Standardized Profiles – OSI Management – Common information for management functions – Part 2: State management
ISO/IEC ISP 12059-3:1995	Information technology – International Standardized Profiles – OSO Management – Common information for management functions – Part 3: Attributes for representing relationships
ISO/IEC ISP 12059-4:1995	Information technology – International Standardized Profiles – OSI Management – Common information for management functions – Part 4: Alarm reporting
ISO/IEC ISP 12059-5:1995	Information technology – International Standardized Profiles – OSI Management – Common information for management functions – Part 5: Event report management
ISO/IEC ISP 12059-6:1995	Information technology – International Standardized Profiles – OSI Management – Common information for management functions – Part 6: Log control
ISO/IEC ISP 12060-1:1995	Information technology – International Standardized Profiles – OSI Management – Management functions – Part 1: AOM211 – General management capability
ISO/IEC ISP 12060-2:1995	Information technology – International Standardized Profiles – OSI Management – Management functions – Part 2: AOM212 – Alarm reporting and state management capabilities
ISO/IEC ISP 12060-3:1995	Information technology – International Standardized Profiles – OSI Management – Management functions – Part 3: AOM213 – Alarm reporting capabilities
ISO/IEC ISP 12060-4:1995	Information technology – International Standardized Profiles – OSI Management – Management functions – Part 4: AOM221 – General event report management
ISO/IEC ISP 12060-5:1995	Information technology – International Standardized Profiles – OSI Management – Management functions – Part 5: AOM231 – General log control
ISO/IEC ISP 12062-1 : 1995	Information technology – International Standardized Profiles AMH2n – Message Handling Systems – Interpersonal Messaging – Part 1: IPM MHS Service Support
ISO/IEC ISP 12062-2 : 1995	Information technology – International Standardized Profiles AMH2n – Message Handling Systems – Interpersonal Messaging – Part 2: AMH21 – IPM Content
ISO/IEC ISP 12062-3 : 1995	Information technology – International Standardized Profiles AMH2n – Message Handling Systems – Interpersonal Messaging – Part 3: AMH22 – IPM Requirements for Message Transfer (P1)
ISO/IEC ISP 12062-4 : 1995	Information technology – International Standardized Profiles AMH2n – Message Handling Systems – Interpersonal Messaging – Part 4: AMH23 – IPM Requirements for MTS Access (P3)
ISO/IEC ISP 12062-5 : 1995	Information technology – International Standardized Profiles AMH2n – Message Handling Systems – Interpersonal Messaging – Part 5: AMH24 – IPM Requirements for Enhanced MS Access (P7)
ITU-T Rec. X.215 Addendum 1 (1995)	Information processing systems – Open Systems Interconnection – Service Definition for Session Layer Efficiency Enhancements
ITU-T Rec. X.216 Addendum 1 (1995)	Information processing systems – Open Systems Interconnection –Service Definition for Presentation Layer Efficiency Enhancements
ITU-T Rec. X.225	Information processing systems – Open Systems Interconnection –Protocol Specification for

Addendum 1 (1995)	Session Layer Efficiency Enhancements
ITU-T Rec. X.226 Addendum 1 (1995)	Information processing systems – Open Systems Interconnection – Protocol Specification for Presentation Layer Efficiency Enhancements
ITU-T Rec X.666(1995)	Procedures for registration of international and multinational organization names.
CCITT Rec X.121(1992)	International numbering plan for public data networks.
CCITT Rec X.400(1992)	Message handling system and service overview.
CCITT Rec X.402(1992)	Message handling systems: Overall architecture.
CCITT Rec X.408(1988)	Message handling systems: Encoded information type conversion rules.
CCITT Rec X.411(1992)	Message handling systems: Message transfer system: Abstract service definition and procedures.
CCITT Rec X.413(1992)	Message handling systems: Message store: Abstract service definition.
CCITT Rec X.419(1992)	Message handling systems: Protocol specifications.
CCITT Rec X.420(1992)	Message handling systems: Interpersonal messaging system.

1.4 Glossary

Legend

SLR	System Level Requirements	MHS	Message Handling Services
CM	Context Management	ICC	Inter-Centre Coordination
ADS	Automatic Dependent Surveillance	ULA	Upper Layer Architecture
CPDLC	Controller Pilot Data Link Communications	ICS	Internet Communication Service
FIS	Flight Information Services	P1	Part 1
N/U	Not used		

Term	Where used	Desciption
A-FU	ULA	Authentication Functional Unit
A/G	MHS, ICS	Air-ground
AAC	ICS	Aeronautical Administrative Communications
AARE	ULA	ACSE Associate Response APDU
AARQ	ULA	ACSE Associate Request APDU
ABRT	ULA	ACSE Abort APDU
AC	N/U	Accept
ACA	ADS, ICS	Address compression algorithm
ACAS	ADS	Airborne Collision Avoidance System
Accounting Management	N/U	Accounting management enables charges to be established for the use of resources, and for costs to be identified for the use of those resources. Accounting management includes functions to inform users of costs incurred or resources consumed, enable accounting limits to be set and tariff schedules to be associated with the use of resources, and enable costs to be combined where multiple resources are invoked to achieve a given communications objective.
Association control service element (ACSE)	MHS, ULA, P1	The Association Control Service Element is the common mechanism in the ALS for establishing and releasing ASO-associations
ACT	ULA	Activity Management
Active User	ADS, CM, CPDLC, FIS, ULA, ICS, P1	A user that is currently in an applications dialogue, such as for CM or CPDLC.
Actual TSAP	CM, MHS, ULA	The actual TSAP is composed of the IDP and the long TSAP.
AD	ADS, CM, MHS	1. Administrative domain 2. Addendum (of an ISO/IEC standard)
Address Domain	N/U	An Address Domain is a set of address formats and values administered by a single address authority. Under the ISO plan, any address authority may define subdomains within its own domain, and delegate authority within those subdomains.
Addressing (logical)	N/U	Logical addressing means that the address defined in the addressing plan and used to locate the addressed object is a virtual address which is a substitute of the actual (physical) address of an object. Address mapping functions have to fulfil this substitution, carefully maintaining unambiguity of identification of objects.

Term	Where used	Desciption
Addressing (physical)	N/U	Physical addressing means that the address defined in the addressing plan and used to locate the addressed object is the physical, i.e. hardwired, hard-coded, or configured address of the object. An example of a physical address is the ICAO 24-bit Aircraft Address used for the SSR Mode S Transponder.
Addressing Authority	N/U	An Addressing Authority defines formats and/or values of NSAP addresses within its jurisdiction.
ADJBISMO	N/U	Adjacent BIS MO
ADJRIBMO	N/U	Adjacent RIB MO
ADM	ICS	Administrative identifier
ADMD	MHS	Administration management domain
ADMF	ICS	ADM Flag
Administrative Domain	ICS	A collection of end systems, intermediate systems, and subnetworks operated by a single organisation or administrative authority. An administrative domain may be internally divided into one or more routing domains.
ADS	SLR, ADS, CM, MHS, ULA, ICS, P1	Automatic Dependent Surveillance
ADS-AE Abstract Service Interface	ADS, CM, FIS, MHS, ULA	The abstract interface between the ADS-users and the ADS-service-provider.
ADS-CF	ADS	That abstract part of the AE that performs the mapping between the ADS-ASE service primitives and other elements within the ADS application.
ADS abstract service interface	N/U	The abstract interface between the ADS-air-ASE and the ADS-air-user or between the ADS-ground-ASE and the ADS-ground-user
ADS emergency report	ADS	An ADS report provided as part of an emergency contract
ADS report	ADS	A report provided by the ADS-air-user and sent to the ADS-ground-user concerning conditions on the aircraft, notably its location and FOM
ADS service primitive	ADS	See *Service Primitive*.
ADS service provider	ADS	See *Service Provider*.
ADS-air-ASE	ADS	That abstract part of the aircraft system that performs the communications related functions of ADS
ADS-air-user	ADS	That abstract part of the aircraft system that performs the non communications related functions of ADS
ADS-ASE Abstract Service Interface	N/U	The abstract interface through which the ADS-ASE services are accessed. *Note 1.— In version 1 of the ADS application, this interface coincides with the ADS-AE abstract service interface.*
ADS-ATC	P1	ADS-based Air Traffic Control system
ADS-ground-ASE	ADS	That abstract part of the ground system that performs the communications related functions of ADS
ADS-ground-user	ADS	That abstract part of the ground system that performs the non communications related functions of ADS
AE		Application Entity

Term	Where used	Desciption
AE Qualifier	ADS, CPDLC, CM, FIS, MHS, ULA	That part of the AE title that unambiguously identifies the particular application entity.
AE Title	ULA	An unambiguous name for an application entity.
Aeronautical Administrative Communications (AAC)	N/U	Communications used by aeronautical operating agencies related to the business aspects of operating their flights and transport services. These communications are used for a variety of purposes, such as flight and ground transportation bookings, deployment of crew and aircraft,, or any other logistic purposes that maintains or enhances the efficiency of overall flight operation.
Aeronautical Administrative Messages	SLR, ULA, P1	Messages regarding the operation or maintenance of facilities provided for the safety or regularity of aircraft operation, messages concerning the functioning of the aeronautical telecommunication services, and messages exchanged between government civil aviation authorities relating to aeronautical services.
Aeronautical Industry Service Communication (AINSC)	MHS, ICS	AINSC comprises aeronautical industry communications between airlines, aeronautical industry service providers, general aviation operators, and any other industry stakeholders. This term is used for purposes of address administration.
Aeronautical Information Service Messages.	SLR, FIS, ULA, P1	Messages concerning NOTAMS and messages concerning SNOWTAMS.
Aeronautical Mobile Satellite Service (AMSS)	N/U	AMSS provides packet-mode data and circuit-mode data and voice service to aircraft and ground users provided by a satellite subnetwork which comprises satellites, Aircraft Earth Stations (AESs), Ground Earth Stations (GESs), and associated ground facilities such as a network coordination center.
Aeronautical Operational Control (AOC)	ULA, ICS	Communications required for the exercise of authority over the initiation, continuation, diversion, or termination of a flight in the interest of the safety of the aircraft and the regularity and efficiency of flight.
Aeronautical Passenger Communications (APC)	ICS	Communications relating to the non-safety voice and data services to passengers and crew members for personal communications.
Aeronautical stakeholder	ICS	Definition tbd
Aeronautical Telecommunication Network (ATN)	SLR, ADS, CM, CPDLC, FIS, MHS, ULA, ICS, P1	The Aeronautical Telecommunication Network is an internetwork architecture which allows ground, air-to-ground, and avionics data subnetworks to interoperate by adopting common interface services and protocols based on the International Organization for Standardization (ISO) Open Systems Interconnection (OSI) reference model.
AES	ULA	Aircraft earth station
AF-Address	MHS	1. Either an AFTN addressee indicator as specified in Annex 10, Volume II, 4.4.3.1.2 and 4.4.16.2.1.3 which is used to locate AMHS users, either direct or indirect, in the AFTN address space or a PDAI as specified in Annex 10, Volume II, 4.4.15. Note 1.- an AF-Address (AFTN-form) is an ICAO AFTN 8-letter addressee indicator. 2. AFTN-form address

Term	Where used	Desciption
AFI	ICS	Authority and format identifier
AFS	N/U	Aeronautical fixed service
AFTN	SLR, MHS, ULA, P1	Aeronautical fixed telecommunication network
AFTN/AMHS Gateway	MHS	An ATN End system which provides bi-directional interworking between users of the ATS Message Service and users connected to the AFTN.
AFTN/ATN Type A Gateway	MHS	An ATN End system which provides a bi-directional interface between the ATN and the AFTN for the purpose of conveying AFTN messages over the ATN by implementation of the ATN Pass-Through Service.
AFTN/ATN Type B Gateway	MHS	Another designation of the AFTN/AMHS Gateway.
AINSC	MHS, ICS	Aeronautical Industry Service Communication
AINSC Administrative Domain	ICS	An AINSC Administrative Domain is an ATN Administrative Domain owned and/or administered by an aeronautical industry service organisation.
AINSC RDC	N/U	The ATN AINSC RDC consists of all AINSC RDs in the ATN.
AINSC Routing Areas	N/U	An AINSC Routing Area is a routing subdomain comprising one or more ISs, and optionally, one or more ESs owned and/or administered by an aeronautical industry service organisation. For example, an AINSC Routing Area may correspond to a physical location such as an airline's systems located at an airport.
AINSC Routing Domains	N/U	An AINSC Routing Domain comprises ESs and ISs that are part of an AINSC Administrative Domain.
Air Traffic Control(ATC)	ADS, MHS, P1	ATC is a service operated by an appropriate authority to promote the safe, orderly, and expeditious flow of air traffic.
Air Traffic Management (ATM)	SLR, ADS, ICS, P1	ATM consists of a ground and air part, both needed to ensure the safe and efficient movement of aircraft during all phases of operation.
Air Traffic Services (ATS)	SLR, ADS, CM, CPDLC, FIS, MHS, ICS, P1	Services provided by governmental civil aviation authorities.
Air Traffic Services Communications (ATSC)	MHS, ICS	Communications related to air traffic services including air traffic control, aeronautical and meteorological information, position reporting, and services related to safety and regularity of flight. This communication must involve one or more air traffic service administrations. This term is used for purposes of address administration.
AK	ADS, CM, APDLC, MHS, ICS	Data acknowledgement
ALS	ULA	The Application Layer Structure (ALS) refers to the internal architecture of the OSI Application Layer as described in ISO/IEC 9545, Edition 2.
AMHS	SLR, MHS, ULA, P1	ATS message handling system

Term	Where used	Desciption
AMHS Management Domain	MHS	A MHS Management Domain formed by an ATS organisation for the management of that part of the AMHS which is under its responsibility.
AMHS Message	MHS	An instance of the category of information object defined as message in ISO 10021-2 and conveyed in the AMHS. It is composed of an envelope and of a content.
AMHS Probe	MHS	An instance of the category of information object defined as probe in ISO 10021-2 and conveyed in the AMHS. It is a class of message containing only an envelope which is conveyed by the MTAs from one user up to the MTA serving other users, used to determine the deliverability of messages.
AMHS Report	MHS	An instance of the category of information object defined as report in ISO 10021-2 and conveyed in the AMHS. It is generated by a MTA in order to report on the outcome or progress of a message or probe in the set of interconnected MTAs pertaining to the AMHS.
AMHxx	MHS	Application Message Handling xx (ISP Taxonomy)
AMSS	ICS	Aeronautical mobile satellite service
ANC	ICS	Air Navigation Commission
AOC	ULA, ICS	1. Aeronautical Operational Communications 2. Aeronautical Operational Control
AOM	N/U	Systems Management Upper Layer profile
AP	ADS, CPDLC, MHS, ULA, ICS	Application process
APC	ICS	Aeronautical Passenger Communications
APDU	CM, CPDLC, FIS, ULA	An Application Protocol Data Unit (APDU) is an (N)-PDU where N refers to the Application Layer. An APDU is the basic unit of information exchanged between the airborne application and the ground application.
API	MHS, ULA	Application Program Interface
App	ULA	Application
Application	SLR, ADS, CM, CPDLC, FIS, MHS, ULA, ICS	Software providing services to its users, in the guise of a consistent set of functionality; example given, the ATC related functions implemented in the server(s) and/or controller work position host computers.(from EATCHIP Glossary of Terms / COPS/CWP Report)
Application Control Service Element (ACSE)	N/U	The association control service element (ACSE) establishes, maintains and releases associations between application entities.
Application Entity (AE)	SLR, ADS, CM, CPDLC, FIS, MHS, ULA, P1	Part of an application process that is concerned with communications within the OSI environment. The aspects of an application process that need to be taken into account for the purposes of OSI are represented by one or more AEs.
Application identifier	N/U	An abstract identifier which distinguishes one application from another.
Application Layer	ULA, ICS	The layer of the OSI reference model that controls application user access to the communication system.

Term	Where used	Desciption
Application process (AP)	SLR, MHS, ULA, P1	A set of resources, including processing resources, within a real open system which may be used to perform a particular information processing activity.
Application service	ADS, CM, CPDLC, FIS, ULA, ICS, P1	The abstract interface between the (N)-service and the (N)-service user, where N refers to the Application layer; thus it is the boundary between the ATN-App-AE and the Application-user.
Application Service Element (ASE)	ADS, CM, CPDLC, FIS, ULA, P1	1. A set of functions which provide OSI communications capabilities for the interworking of AEs for a specific purpose. An AE may be composed of one ASE or several ASEs of different types. 2. A set of application functions which provide a capability for the interworking of application-entity-invocations for a specific purpose; ASEs are a component of application service objects. An ASE can be considered to be a protocol module that is combined with others to form a complete protocol.
Application Service Object (ASO)	ULA, P1	An active element within (or equivalent to the whole of) the application-entity embodying a set of capabilities defined for the Application Layer that corresponds to a specific ASO-type (without any extra capabilities being used). An ASO is a combination of ASEs and ASOs that perform a specific function. An ASO that provides the functions of the establishment and data transfer phases is considered a complete protocol.
Application-user	ULA	That abstract part of the aircraft or ground system that performs the non-communications related functions of the Application
APRL	ICS	ATN profile requirements list
ARS	CM, ICS	Administrative Region Selector
ARSD	ICS	ARS Default [Flag]
ASE	ADS, CM, CPDLC, FIS, ULA, P1	Application Service Element
ASI	N/U	Abstract Service Interface
ASN.1	ADS, CM, CPDLC, FIS, MHS, ULA, ICS	Abstract Syntax Notation One
ASO	ULA, P1	Application Service Object
ATC	SLR, ADS, CPDLC, FIS, MHS, ICS, P1	Air Traffic Control
ATFM	N/U	Air traffic flow management
ATIS	SLR, CPDLC, FIS, ULA, P1	Automatic Terminal Information Service
ATM	SLR, ADS, CM, APDLC, FIS, MHS, ULA, ICS, P1	Air Traffic Management

Term	Where used	Desciption
ATM/ATS Applications	N/U	These are applications supporting ATM or other ATS functions and do not necessarily correspond to ATN applications. The term is usually used to distinguish between ATM functions and other non-ATM functions using the same communication service.
ATN	SLR, ADS, CM, CPDLC, FIS, MHS, ULA, ICS, P1	Aeronautical Telecommunication Network
ATN App	ULA, P1	A generic name for an ATN application.
ATN Applications	SLR, ULA, ICS, P1	Refers to applications that support ATM or aeronautical industry functions and that are designed to operate across an OSI communications system. ATN applications are always distributed applications, i.e. peer processes are hosted by different end systems which are interconnected.
ATN Environment	ICS	The term ATN environment relates to functional and operational aspects around the ATN as a complete end-to-end communication system.
ATN host computer	N/U	An ATN host computer is a civil aeronautical computer system which contains one or more end user applications and that communicates using the ATN internet. In OSI terms, it denotes an End System. An ATN Host Computer may also implement the upper layers necessary to support the Systems Management Agent and Systems Management Manager and upper layer protocols as specified for the supported end-user applications.
ATN Internet (ATNI)	MHS, ULA, ICS	An implementation of the ISO OSI network layer services and protocols for support of interprocess data communication between aeronautical host computers. It is defined to be the collection of the connected internetwork routers and subnetworks that conform to ATN internetwork requirements.
ATN Island Backbone RDC	ICS	An ATN backbone is an RDC comprising a subset of Transit Routing Domains within an ATN Island which provide general connectivity.
ATN Island Bridge	N/U	A bridge between two ATN Islands is a communications link between backbones over a suitable subnetwork.
ATN Island RDC	ICS	An ATN Island is an RDC comprising CAA-operated ATN RDs within a geographical region, and may include associated ATN service providers, or an RDC comprising Aeronautical Industry members which are users of communications services of a single Aeronautical Industry Service Provider, or more than one such provider providing services in combination with each other.
ATN Network Operating Concept	N/U	An ATN Network Operating Concept will address the administrative, operational, institutional, and policy issues and additional (non-SARPs relevant) technical aspects to enable the efficient and correct operation of the ATN.
ATN Presentation Address	N/U	In the ATN, presentation addresses must, as a minimum, include an NSAP Address and a TSAP Selector and may include a PSAP Selector and SSAP Selector based on the addressing structure adopted within the ES and whether the application requires the OSI session or presentation protocol.

Term	Where used	Desciption
ATN Profile Requirement List (APRL)	N/U	APRLs contained in the Draft ATN SARPs identify, in a tabular form, requirements together with the options and parameters for protocols used in the ATN. The supplier of an ATN protocol implementation claiming to conform to the ATN SARPs must indicate conformance to those requirements by preparing a Protocol Implementation Conformance Statement (PICS) based on the set of APRLs presented in the SARPs.
ATN Router	ICS, P1	The communication element that manages the relaying and routing of data while in transit from an originating ATN host computer to a destination ATN host computer. In ISO terms, an ATN router comprises an OSI intermediate system and an end system supporting a systems management agent.
ATN Routing Domain Confederation	N/U	The ATN RDC is the set of interconnected RDs that together form the ATN.
ATN Services	N/U	The ATN services are provided to ATN users that require ground-ground or air-ground data communication. The ATN internet service is provided at the transport layer (service access point). The ATN accommodates different grades of services which can be expressed by Quality of Service parameters.
ATN System Applications	N/U	System Applications support the operation of the ATN communication services and are either not directly or not at all used by ATN users but rather by the service providers or operators. Typical examples of ATN system applications are the ATN directory service, ATN context management or ATN systems management.
ATN Systems Management	ICS	The ATN Systems Management provides mechanisms for monitoring, control and co-ordination of resources necessary to provide ATN services. ATN Systems Management is based on OSI System Management principles and may be distributed, centralised, or local.
ATN-App ASE	ULA, P1	That abstract part of the ATN end system that performs the communications related functions of the ATN application. Examples of the ATN-App ASE include: the ADS-Air ASE and the CM-Air ASE.
ATNI	N/U	ATN internet
ATNPA	N/U	ATN protocol architecture
ATNSM	N/U	ATN systems management
ATS	SLR, CM, CPDLC, FIS, MHS, ULA, ICS, P1	Air Traffic Services
ATS Message	SLR, MHS, ULA, P1	A unit of user-data, coded in binary form, which is conveyed from an originator of the data to one or more recipients of the data. It is possible to associate a unique message identifier and a priority with each ATS message.
ATS Message Handling Service	MHS, P1	Procedures used to exchange ATS Messages over the ATN such that the conveyance of an ATS Message is in general not correlated with the conveyance of another ATS Message by the service provider. Two ATS Message Handling Services are defined in Sub-Volume III. They are the ATS Message Service and the ATN Pass-Through Service.

Term	Where used	Desciption
ATS Message Handling System (AMHS)	MHS	The set of computing and communication resources implemented by ATS organizations to provide the ATS Message Service.
ATS Message Protocol Stack Type A	MHS	The protocol implemented between two ATN End Systems which support the ATN Pass-Through Service.
ATS Message Protocol Stack Type B	MHS	The set of protocols implemented between ATN End Systems which support the ATS Message Service.
ATS Message Server	MHS	An ATN End system which provides the relay function included in the ATS Message Service. It may also optionally provide the storage function included in the ATS Message Service.
ATS Message Service provider	MHS	The combination formed by an ATS Message Server and an ATS Message User Agent.
ATS Message User Agent	MHS	An ATN End system which provides an interface to the ATS Message Service for an ATS Message Service user.
ATSC	SLR, ADS, CM, CPDLC, FIS, MHS, ULA, ICS, P1	Air Traffic Services Communications
ATSC Administrative Domain	ICS	An ATSC Administrative Domain is an ATN Administrative Domain owned and/or administered by an air traffic services organisation.
ATSC RDC	N/U	The ATN ATSC RDC consists of all ATSC RDs in the ATN.
ATSC Routing Areas	N/U	An AINSC Routing Area is a routing subdomain comprising one or more ISs, and optionally, one or more ESs owned and/or administered by an ATS organisation. For example, an ATSC Routing Area may correspond to a physical location such as an airport.
ATSC Routing Domain	N/U	An ATSC Routing Domain comprises ESs and ISs that are part of an ATSC Administrative Domain.
ATSU	CPDLC	Air Traffic Services Unit
AU	ADS, CPDLC, MHS, ULA, ICS	Access unit
Authentication information	ULA	Information used to authenticate the identity of an application or user.
Automatic Dependent Surveillance (ADS)	SLR, ADS, ULA, ICS, P1	A technique in which aircraft automatically provide, via a data link, data derived from on-board navigation and position-fixing systems, including aircraft identification, four-dimensional position, and additional data as appropriate. ADS is a data link application.
BCD	ICS	Binary Coded Decimal
BER	N/U	Basic Encoding Rules (of ASN.1)
BIS	ICS	Boundary intermediate system
BISPDU	ICS	BIS PDU
Boundary Intermediate System (BIS)	N/U	An intermediate system that is able to relay data between two separate routing or administrative domains.
BPS	N/U	Bits per second
Broadcast Subnetwork	N/U	Broadcast subnetworks (e.g. LANs) are often used to connect ISs and ESs within a small geographical area with media offering relatively high data throughput with relatively low delays.

Term	Where used	Desciption
C		Counter
CAA	N/U	Civil aviation administration
CAN	CPDLC, ICS	Cancellation
CC	ICS	Connection confirm
CCITT	MHS, ICS	International Telegraph and Telephone Consultative Committee
CDSE	ULA	Confirmed Data Service Element
CDT	ICS	Credit
CE	ADS, ICS	Congestion experienced flag
CF	ADS, CM, CPDLC, FIS, MHS, ULA	1. Control Function 2. That abstract part of the AE that performs the mapping between the ATN-App ASE service primitives, the ACSE service primitives, and other elements within the Application Entity.
CIDIN	ICS	Common ICAO data interchange network
CL	CPDLC, FIS, ULA, ICS	Connectionless mode
CLNP	SLR, ULA, ICS, P1	CL network protocol
CLNPMMO	N/U	CL network protocol machine MO
CLNS	ICS	CL network service
CLTP	ICS	CL transport protocol
CLTPMMO	N/U	CL transport protocol machine MO
CM	SLR, CM, ULA, ICS, P1	Context Management
CM-CF	CM	That abstract part of the application entity that performs the mapping between the CM-ASE service primitives and other elements within the CM application.
CM AE abstract service interface	N/U	The abstract interface between the CM-users and the CM-service provider.
CM service primitive	CM	See *Service Primitive*.
CM service provider	CM	See *Service Provider*.
CM-air-ASE	CM	An abstract part of the aircraft system that performs the communication related functions of CM.
CM-air-user	CM	The abstract part of the aircraft system that performs the non communication related functions of CM.
CM-ASE abstract service interface	N/U	The abstract interface through which the CM-ASE service are accessed.
CM-ground-ASE	CM	An abstract part of the ground system that performs the communication related functions of CM.
CM-ground-user	CM	The abstract part of the ground system that performs the non communication related functions of CM.
CMIP	N/U	Common management information protocol
CMIS	N/U	Common management information service
CMISE	N/U	CMIS element
CN	ULA, ICS	Connect

Term	Where used	Desciption
CNS	SLR, ADS, CM, CPDLC, FIS, MHS, ULA, ICS, P1	Communications, Navigation, and Surveillance
CNS/ATM	SLR, ADS, CM, CPDLC, FIS, MHS, ULA, ICS, P1	Communications Navigation Surveillance / Air Traffic Management
CO	ADS, CPDLC, ULA, ICS	Connection mode
COMSEC	N/U	Communications security
Configuration Management	N/U	Configuration management identifies, exercises control over, collects data from and provides data to open systems for the purpose of preparing for, initialising, starting, providing for the continuous operation of, and terminating interconnection services.
Congestion	ICS	In the ATN Internet sense, congestion describes the state where the network is overloaded. Typical effects of congestion are extended transit delays, drastically reduced throughput, and the loss of data packets.
Congestion Avoidance	ICS	Techniques which continuously control the data flow into the network in order to prevent the network from getting overloaded. These encompass both open-loop techniques which ensure that a traffic contract specified by the source is respected, and closed-loop techniques which monitor signals generated by the network and adapt the traffic generated by the sources accordingly.
Congestion Management	ICS	A set of rules and techniques that prevent congestion , e.g. by monitoring actual network load. Co-operative interaction of all end systems is required in order to prevent individual end-systems taking up the throughput saved by well-behaving systems.
Congestion Recovery / Congestion Control	N/U	A mechanism that reacts to congestion after it has occurred in order to remove the overload condition. Congestion Recovery can be initiated only after congestion has been experienced, and is not able to safely prevent congestion in the network.
Connection mode Service (CO)	N/U	The communication service technique that transfers data between peer layers using a prior connection to logically associate the sequence of protocol data units (PDUs).
Connectionless mode Service (CL)	N/U	The communication service technique transfers data between peer layers without prior coordination. All protocol data units (PDUs) are transferred with no explicit association between them.
Context Management	SLR, CM, ULA, ICS, P1	Refers to an ATN application. This application implements an ATN logon service allowing initial aircraft introduction into the ATN. The logon service also allows indication of all other data link applications on the aircraft. CM also includes functionality to forward addresses between ATC centres. Thus, CM is a logon and simple directory service. Note: “Context Management” is a recognised OSI presentation layer term. The OSI use and the ATN use have nothing in common.
contract	ADS, FIS, P1	An agreement between the ADS-ground-user and the ADS-air-user that the latter will provide reports to the former under the conditions specified in the contract.

Term	Where used	Desciption
COTP	MHS, ICS	1. CO transport protocol 2. Connection-oriented transport protocol
COTPMMO	N/U	COTP protocol machine MO
COTS	ICS	CO transport service
CP	FIS, ULA, ICS	Connect PPDU
CPA	ULA	Connect Accept PPDU
CPC	CPDLC, ULA	Controller-Pilot Communications
CPDLC	SLR, CM, CPDLC, ULA, ICS, P1	Controller-Pilot Data Link Communications
CPDLC AE abstract service interface	N/U	The abstract interface between the CPDLC-users and the CPDLC-service provider.
CPDLC ASE abstract service interface	N/U	The abstract interface through which the CM-ASE service are accessed.
CPDLC service primitive	CPDLC	See *Service Provider.*
CPDLC service provider	CPDLC	See *Service Provider.*
CPDLC-air-ASE	CPDLC	An abstract part of the aircraft system that performs the communication related functions of CPDLC.
CPDLC-air-user	CPDLC	The abstract part of the aircraft system that performs the non-communication related functions of CPDLC.
CPDLC-CF	CPDLC	That abstract part of the application entity that performs the mapping between the CPDLC-ASE service primitives and other elements within the CPDLC application.
CPDLC-ground-ASE	CPDLC	An abstract part of the ground system that performs the communication related functions of CPDLC.
CPDLC-ground-user	CPDLC	The abstract part of the ground system that performs the non-communication related functions of CPDLC.
CPR	ULA	Connect Reject PPDU
CR	ADS, MHS, ULA, ICS	1. Connection request 2. Context Restoration
Current Data Authority	CPDLC	The ground system that is permitted to conduct a CPDLC dialogue with an aircraft.
CVER	ICS	Compressed VER
Data Communications Equipment (DCE)	N/U	An interface between data terminal equipment and the transmission mechanism.
Data Link Applications	ULA	Applications using either a specific data link (air/ground subnetwork) or air-ground communications in general. (should be replaced by the term ATN Air/Ground Applications.)
Data Link Layer	ICS	The layer of the OSI reference model that manages the operations of the physical layer and may utilise special error detection or retransmission techniques to achieve acceptable error rates.
Data Terminal Equipment (DTE)	N/U	A digital data transmitter/receiver device that includes terminals and computers.

Term	Where used	Desciption
Datagram service	N/U	A service providing the transmission and reception of packets of data as discrete messages.
DC	ADS, FIS, ICS	1. Demand Contract 2. Disconnect confirm
DCC	N/U	Data country code
DCE	ICS	Data circuit terminating equipment
DCPC	N/U	Direct Controller-Pilot Communications
Demand Contract	ADS, FIS	A "contract" between a requestor and a provider of information service, such as ADS or FIS, to provide a single report to the requestor (vs. Continual reports to one request).
DFDAU	N/U	Digital flight data acquisition unit
Dialogue	ADS, CM, CPDLC, FIS, MHS, ULA, P1	A co-operative relationship between elements which enables communication and joint operation.
Dialogue service	ADS, ULA	The lower service boundary of an ATN-App ASE; the service allows two ATN-App ASEs to communicate, such as a CM-ground-ASE to communicate with a CM-air-ASE.
DIR	MHS	Use of Directory
Directory	MHS, ULA, ICS	A facility that supports on request the retrieval of ATN address information or the resolution of application names.
Directory Service	N/U	Provides the ATN user with the addressing information that is associated with the application process title or application entity title used as input to the directory. The addressing information provided by the directory service includes the network address as well as further technical addresses on the layers above, as required or applicable. Furthermore, the ATN Directory Service resolves generic application process titles or application entity titles, i.e. names which may be incomplete or contain "don't care" elements, into the corresponding (list of) non-generic application process titles or application entity titles.
Distinguishing Path Attribute (DPA)	N/U	Used to discriminate among multiple routes to a destination, based on differences in the quality of service between the routes (for example, expense, transit delay or residual error probability.)
DL	MHS	Distribution List
DN	ADS, ULA	Disconnect
Domain	MHS, ICS	A set of end systems and intermediate systems that operate according to the same routing procedures and that is wholly contained within a single Administrative domain.
Domain Specific Part (DSP)	ICS	An Addressing Authority is responsible for its own Addressing Subdomain, and NSAP Addresses within that addressing domain are distinguished, where necessary, by the value of the DSP.
Downstream Data Authority	CPDLC	The ground system that is permitted to conduct a DSC dialogue with an aircraft.
DPA	N/U	Distinguishing path attribute
DR	CPDLC, ULA, ICS	Disconnect request

Term	Where used	Desciption
DS	ADS, CM, CPDLC, FIS, MHS, ULA	Dialogue Service
DSP	FIS, ICS	1. Data link service provider 2. Domain specific part
DST-REF	N/U	Destination reference
DT	SLR, ULA, ICS, P1	1. Data 2. Data Transfer SPDU
DTE	ICS	Data terminal equipment
E/C	ICS	Error probability over cost flag
E/R	ICS	Error report requested
E/T	ICS	Error probability over transit delay flag
EA	MHS, ICS	ED acknowledge
ED	ICS, P1	Expedited data
EGP	N/U	Exterior gateway protocol
emergency contract	ADS, P1	A contract to provide ADS reports at regular intervals during an emergency situation
emergency mode	ADS	A mode of operation of the aircraft when a *Active User:* a user that is currently involved in a CM dialogue.
End Routing Domain (ERD)	ICS	A RD that only routes PDUs from/to its own RD.
End System (ES)	SLR, MHS, ULA, ICS, P1	A system that contains the seven OSI layers and contains one or more end user application processes.
end user	N/U	The human who is using the user interface to the system
Engineering Trials	N/U	Trials based on pre-operational, prototype, or experimental equipment. Aim is to demonstrate the technical feasibility and correctness of applied techniques, concepts, and specifications.
Entity	SLR, ADS, CM, CPDLC, FIS, MHS, ULA, ICS, P1	An active element in any layer which can either be a software entity (such as a process) or a hardware entity (such as an intelligent I/O chip).
EoS	MHS	Element of Service
EOT	N/U	End of TSDU
ER	CM, CPDLC, FIS, MHS, ICS	1. Error [TPDU] 2. Error report [NPDU] 3. Error report requested flag
ERD	ICS	End routing domain
ERP	ICS	Echo Response [NPDU]
ERQ	ICS	Echo Request [NPDU]
ES	SLR, ICS, P1	End System
ESCT	ICS	ES configuration timer
ESH	ICS	ES hello

Term	Where used	Desciption
Ethernet	ICS	Based on the local area network standard, ISO 8802-3 Carrier Sense Multiple Access with Collision Detection (CSMA/CD) Access Method, and Physical Layer Specifications using broadcast technology which may connect as an ATN subnetwork.
event contract	ADS, P1	A contract to provide ADS reports when certain events occur.
EX	ULA, ICS	Expedited Data SPDU
EXCEP	ULA	Exceptions
EXP	ULA, ICS	LOCREF extension flag
Expected Quality of Service (QoS)	N/U	A combination of a priori knowledge and analysis of performance information received from the operation of routing protocols.
Expected Transit Delay	ICS	The time elapsed between the invocation of CLNS by the source ATN NS user and the arrival of an NSDU at the destination ATN NS user, based on an NPDU size of 512 octets. Transit Delay values are typically expressed in increments of 500 milliseconds.
Expense	ICS	The cost to perform some task. In the context of internetworking, expense is defined in terms of the incremental expense incurred for transfer of a single NSDU of 512 octets in size.
extended projected profile	ADS	A projected profile extended up to a number of way points.
F/M	ICS	Fixed/Mobile
FANS	ICS	Future Air Navigation Systems
Fast Byte	N/U	definition tbd.
Fault Management	N/U	Encompasses fault detection, isolation, and the correction of abnormal operation, and includes functions to maintain and examine error logs, accept and act upon error detection notifications, trace and identify faults, carry out sequences of diagnostic tests, and correct faults.
FD	ADS, CM, CPDLC, FIS, ULA, ICS	1. Functional Description 2. Full Duplex
FDPS	N/U	Flight Data Processing System
FG	MHS, ICS	Functional Group
FIB	ICS	Forwarding information base
FIBMO	N/U	FIB MO
FIFO	N/U	First in first out
FIS	SLR, CM, FIS, ULA, ICS, P1	Flight Information Services
FIS-AE Abstract Service Interface	N/U	The abstract interface between the FIS-users and the FIS-service-provider.
FIS Abstract Service Interface	N/U	The abstract interface between the FIS-air-AE and the FIS-air-user or between the FIS-ground-AE and the FIS-ground-user. In CNS/ATM-1 Package, this interface identifies both the FIS AE abstract service interface and the FIS-ASE abstract service interface.
FIS service-primitive	FIS	A function of an FIS AE that is not broken down further into subfunctions, and is presented as part of the abstract service interface (i.e. request, indication, response, or confirmation).

Term	Where used	Desciption
FIS service-provider	FIS	Composed of the ground and airborne FIS AEs, all underlying data communication protocol entities and the physical media. As a consequence, it encompasses everything between the FIS-AE service interfaces of the end-users of the FIS application.
FIS-air-ASE	FIS	The abstract part of the aircraft system that performs the communications related functions of FIS.
FIS-air-user	FIS	The abstract part of the aircraft system that performs the non communication related functions of FIS.
FIS-ASE	FIS	The FIS-air-ASE and the FIS-ground-ASE.
FIS-ASE Abstract Service Interface	N/U	The abstract interface through which the FIS-ASE services are accessed.
FIS-CF	FIS	The abstract part of the AE that performs the mapping between the FIS-ASE service primitives and others elements within the FIS Application.
FIS-ground-ASE	FIS	The abstract part of the ground system that performs the communications related functions of FIS.
FIS-ground-user	FIS	The abstract part of the ground system that performs the non communication related functions of FIS.
FIS-user	FIS	The FIS-air-user or the FIS-ground-user.
Fixed ATN RDC	ICS	The Fixed ATN RDC consists of all ground-based RDs that form the ATN.
flight id	ADS, CM, ULA	An identifier, to an ICAO approved format, for a particular flight.
Flight plan	N/U	Specified information provided to air traffic services units, relative to an intended flight or portion of a flight of an aircraft. *NOTE: Specifications for flight plans are contained in Annex 2.*
Flow control	ICS	A function that controls the flow of data to perform buffer management within a layer or between adjacent layers.
FMS	N/U	Flight management system
FN	ADS, CM, ULA, ICS	Finish SPDU
FOM	ADS	1. Figure Of Merit 2. An indication of the level of accuracy of positional information given in an ADS report.
forward contract	ADS, P1	A contract to provide a ground ADS system with ADS reports.
Forwarding Information Base (FIB)	ICS	The information base that is maintained by each ATN router and contains the set of forwarding paths reflecting the various policy and QoS rankings available to reach each known destination.
Four-D profile	N/U	TBD
FP	ADS, CPDLC, FIS, ULA, ICS	Full/Prefix
FSM	ICS	Finite state machine
FTAM	N/U	File transfer, access and management
FU	ADS, CPDLC, FIS, ULA, ICS	Functional Unit

Term	Where used	Desciption
Function	ADS, CM, CPDLC, FIS, MHS, ULA, ICS, P1	a coherent set of activities which fulfils, by itself or together with other functionality, a concept. Examples of functions: conflict free planning; electronic representation of the flight.
Functional Requirements	N/U	Operational requirements that determine what function a system should perform. They can usually be expressed by a verb applying to a type of data, e.g. display aircraft position.
G	?	Gauge
GA	MHS	General Aviation
Gateway	MHS, ULA	A system used to interconnect dissimilar networks. A gateway may contain all seven layers of the OSI reference model.
GDMO	N/U	Guideline for definition of MOs
General Communications	ICS	A category of communications which includes APC, public correspondence, and other non-operational and non-administrative communications.
General Topology Subnetwork	N/U	Used to connect geographically dispersed ISs and ESs.
GES	ICS	Ground earth station
Global Network Addressing	N/U	An internetwork addressing plan covering worldwide aeronautical operations which enables all participating subnetworks to function in a single integrated global network.
Global Network Addressing Domain	N/U	An addressing domain consisting of all the NSAP addresses in the OSI environment.
GT	ULA	Give Tokens SPDU
HD	ADS, CPDLC, ULA, ICS	Half Duplex
HF	ADS, CPDLC, ULA, ICS	High Frequency
HI	ADS, FIS	High Interface
IA5	ADS, CM, CPDLC, FIS, MHS, ICS	International Alphabet Number 5
IATA	ULA, ICS	International Air Transport Association
ICAO	SLR, ADS, CM, CPDLC, FIS, MHS, ULA, ICS, P1	International Civil Aviation Organization
ICC	SLR, ULA, ICS, P1	1. Inter-Centre Coordination 2. Inter-Centre Communications
ICD	ULA, ICS	International code designator
ICS	N/U	Implementation conformance statement
ID	ADS, CM, CPDLC, MHS, ULA, ICS	1. Identification 2. Identifier
IDI	ICS	Initial domain identifier

Term	Where used	Desciption
IDP	CM, ICS	Initial Domain Part
IDRP	ICS	Interdomain routing protocol
IDRPCFGMO	N/U	IDRP configuration MO
IIH	N/U	IS-IS hello
Indicated QoS	N/U	Determined by the QoS parameters passed in protocol control information, and may reflect varying accuracy with respect to actual characteristics.
Initial Domain Part (IDP)	ICS	The Addressing Authority responsible for an Addressing Subdomain that assigned the NSAP Address, and that specified the abstract syntax and structure of the remainder of the NSAP Address.
Institutional Issues	N/U	Issues related to ownership, control, and responsibility for correct implementation and operation of systems that involve more than one state or organisation.
Integrated Services Digital Network (ISDN)	N/U	A public telecommunications network that supports the transmission of digitised voice and data traffic on the same transmission links.
Intermediate System (IS)	SLR, ICS, P1	A system comprising the lower three layers of the OSI reference model and performing relaying and routing functions.
Internetwork	MHS, ICS, P1	A set of interconnected, logically independent heterogeneous subnetworks. The constituent subnetworks are usually administrated separately and may employ different transmission media.
Internetwork Protocol	MHS, ICS	A protocol that performs the basic end-to-end mechanism for the transfer of data packets between network entities. In the ATN Internet, the ISO 8473 internetwork protocol is used.
Interoperable	N/U	Describes the ability of the ATN to provide, as a minimum, a transparent data transfer service between end systems even though the ATN comprises various ground, air-to-ground, and avionics subnetworks. The ability to interoperate between end systems can be extended to include commonality of upper layer protocols.
Intra-domain routing information exchange protocol	N/U	In the ATN, the ISO 10589 IS-IS intra-domain routing information exchange protocol may be used to exchange connectivity and topology information between ATN routers within a routing domain.
IOC	N/U	Internet operations centre
IP	MHS, ULA, ICS	Internetwork protocol
IPI	ICS	Initial protocol identifier
IPM	MHS	Interpersonal message
IPMS	MHS	Interpersonal Messaging System
IPN	MHS	Interpersonal notification
IPRL	N/U	ISP Protocol RL
IS	SLR, ADS, CM, CPDLC, FIS, MHS, ULA, ICS, P1	1. International Standard 2. Intermediate system

Term	Where used	Desciption
IS-SME	ICS	IS SME
ISDN	ICS	Integrated Services Digital Network
ISH	ICS	IS hello
ISN	N/U	Initial sequence number
ISO	SLR, MHS, ULA, ICS, P1	International Organization for Standardization
ISOPA	N/U	ISO protocol architecture
ISORM	N/U	ISO reference model
ISP	MHS, ULA	International standardized profile
ISPICS	MHS	ISP Implementation Conformance Statement
ITA-2	MHS	International Telegraph Alphabet No. 2
ITU	MHS, ULA, ICS	International Telecommunication Union
ITU-T	N/U	ITU Telecommunication Standardization Sector
IUT	ICS	Implementation under test
IVMO	N/U	Initial value MO
K		Kilo
L1R	N/U	Level 1 Router
L2R	N/U	Level 2 Router
LAN	CPDLC	Local area network
Level 1 subdomain	N/U	A routing subdomain of end systems and intermediate systems that maintains detailed routing information about its own internal composition and routing information which allows it to reach other routing areas. A level 1 subdomain area is also denoted a routing area.
Level 2 subdomain	N/U	The subset of all level 2 intermediate systems within a routing domain.
LI	ADS,FIS	1. Low Interface 2. Length indicator
LINKMO	N/U	Linkage MO
LOC	CM, ICS	Location Identifier
Local Area Network (LAN)	N/U	A network connecting various data communication devices in a localised geographical area such as a single aircraft, office building, or a group of buildings.
LOCD	ICS	LOC Default [Flag]
LOCREF	N/U	Local reference
LOCRIBMO	N/U	Local RIB MO
Long TSAP	CM, MHS, ICS	Composed of the RDP and the short TSAP.
Lower layers	P1, SLR, MHS, ULA, ICS	The physical, data link, network and transport layers of the OSI reference model.
LSP	ICS	Link state PDU
M	????	More [bit] (X.25)

Term	Where used	Desciption
MA	N/U	Major Synchronisation
MAC	N/U	Medium Access Control
MAD	N/U	Management administrative domain
Managed Object	SLR, ICS	Data processing and data communication resources that may be managed through the use of the OSI Management protocol.
Management Administrative Domain	P1, SLR, ICS	A management domain where the managed objects in the domain are all under the responsibility of one, and only one, administrative authority.
Management Agent	MHS, ULA, ICS	Performs management operations on managed objects within its local environment as a consequence of management operations communicated from a manager. An Agent may also forward notifications emitted by managed objects to a manager.
Management Domain	P1, SLR, MHS, IDS	Resources that for systems management purposes are represented by managed objects. A management domain possesses at least the following quantities: a name that uniquely identifies that management domain, identification of a collection of managed objects that are members of the domain, and identification of any inter-domain relationships between this domain and other domains.
Management Information Base (MIB)	P1, SLR, ADS, CM, APDLC, FIS, ICC, MHS, ULA, ICS	A conceptual composite of management information within an open system.
Management Information System (MIS)-User	P1, SLR, ADS, CM, CPDLC, FIS, ICC, MHS, ULA, ICS	A management application. For the purposes of network management, an MIS-User is allowed to take on one of two possible roles — either an agent role or a manager role.
Manager	ICS	The term given to a system that requests or otherwise receives information about managed objects.
MD	CM. CPDLC, ICC, MHS, ICS	Management Domain
MD4	ICS	Message Digest Algorithm
Mean Transit Delay	ICS	The average time it takes to transfer a standard packet size from source to destination.
Message	P1, SLR, ADS, CM, CPDLC, FIS, ICC, MHS, ULA, ICS	Basic unit of user information exchanged between an airborne application and its ground counterpart, or between two ground applications. Messages are passed in one or more data blocks from one end user to another through different subnetworks.
Message Element	P1, SLR, ADS, CM, CPDLC, FIS, ICC, MHS, ULA, ICS	A component of a message used to define the context of the information exchanged.

Term	Where used	Desciption
Message Element Identifier	ADS, CM, CPDLC, FIS, ICC, MHS, ULA, ICS	The ASN.1 tag of the ATCUplinkMsgElementID or the ATCDownlinkMsgElementId.
Message Header (air/ground)	P1, SLR, ADS, CM, CPDLC, FIS,ULA,	The control information used to maintain synchronisation between the aircraft and the ground ATC system.
Message Header (ground/ground)	P1, SLR, ICC, MHS, ULA, ICS	Control information used to maintain synchronisation between the two ground ATC systems.
Message Identification Number	P1, SLR, ADS, CM, CPDLC, FIS, ICC, MHS, ULA, ICS	A unique number assigned to each air/ground message. This number is used to differentiate messages and is conveyed in an air/ground message header.
Message Reference Number	P1, SLR, ADS, CM, CPDLC, FIS, ICC, MHS, ULA, ICS	Used to uniquely associate a response with a previously received message. The Message Identification Number of a previously received message becomes the Message reference number of the response message. The Message Reference number is conveyed in the message header.
MET	N/U	Meteorological
MF-Address	MHS	1. MHS-form address 2. An instance of the AMHS address form which is used to locate a direct or indirect AMHS user in the AMHS address space.
MHS	P1, SLR, MHS	1. Message Handling Services 2. Message handling system
MIB	N/U	Management information base
MIDS	N/U	Management information definition statement
MIS	SLR	Management information service
MO	N/U	Managed object
MOA	N/U	MO attribute
Mobile Routing Domains	P1, SLR, ICS	Formed from ATSC and AINSC systems onboard an aircraft (or any other mobile platform), within the aircraft operator's Administrative Domain. A mobile RD is characterised as an End Routing Domain (ERD).
Mobile Subnetwork	P1, SLR, ICS	A subnetwork connecting a mobile system with another system not resident in the same mobile platform. These subnetworks tend to use free-radiating media (e.g. VHF/UHF radio, D-band satellite or D-band secondary surveillance radar) rather than "contained" media (e.g. wire or coaxial cable); thus they exhibit broadcast capabilities in the truest sense.
MOCS	N/U	MO conformance statement
MOD	N/U	Modulus
Mode S	ULA, ICS	Mode Select

Term	Where used	Desciption
Mode Select (Mode S)	N/U	An enhanced mode of secondary surveillance radar (SSR) which permits the selective interrogation of Mode S transponders, the two-way exchange of digital data between Mode S interrogators and transponders, and also the interrogation of Mode A or Mode C transponders.
MORTS	N/U	MO requirement template specification
MOTIS	P1, SLR, MHS	Message-oriented text interchange system
MS	LSR, MHS, ICS	1. More segments flag 2. Message store
MTA	MHS	Message transfer agent
MTS	SLR, MHS	Message Transfer System
MTSE	MHS	Message transfer service element
Multi-homed End Routing Domain	N/U	An ERD that is in communication with more than one RD.
N/A	SLR, CM, CPDLC, FIS, MHS, ULA, ICS	Not applicable
navigational intent	ADS	The intended path of the aircraft for a period of time in the future.
NE	P1,ADS, CM, CPDLC, FIS, ICC, MHS, ULA, ICS	Network entity
NEMO	N/U	NE MO
NET	P1, ADS, CM, CPDLC, FIS, ICC, MHS, ULA, ICS	NE title
Network Addressing Domain	P1, SLR, MHS, ICS	A subset of the global addressing domain consisting of all the NSAP addresses allocated by one or more addressing authorities.
Network Entity	P1,ADS, CM, CPDLC, FIS, ICC, MHS, ULA, ICS	A functional portion of an internetwork router or host computer that is responsible for the operation of internetwork data transfer, routing information exchange, and network layer management protocols.
Network Entity Title (NET)	P1,ADS, CM, CPDLC, FIS, ICC, MHS, ULA, ICS	The global address of a network entity.
Network Layer	P1, SLR, ADS, CM, CPDLC, FIS, ICC, MHS, ULA, ICS	Provides a uniform service interface for the transfer of data among end systems and intermediate systems (ISs) utilising the ISO protocol architecture.
Network Management	P1, SLR, ADS, CM, CPDLC, ICC, MHS, ULA, ICS	The set of functions related to the management of various OSI resources and their status across the Network Layer of the OSI architecture.

Term	Where used	Desciption
Network Service Access Point (NSAP)	P1, SLR, FIS, ICC, MHS, ULA, ICS	Point within the ISO protocol architecture at which global end users may be uniquely addressed on an end-to-end basis.
Network Service Access Point (NSAP) Address	ICS	A hierarchically organised global address, supporting international, geographical, and telephony-oriented formats by way of an address format identifier located within the protocol header. Although the top level of the NSAP address hierarchy is internationally administered by ISO, subordinate address domains are administered by appropriate local organisations.
Network Topology Map	ICS	Provides an overall view of the global network connectivity, and is used in path computations by the operative routing algorithm.
Next Data Authority	ICS	The ground system so designated by the Current Data Authority.
NL	N/U	Network layer
NLE	N/U	NL entity
NLM	N/U	NL management
NLPI	ICS	NL protocol information
NLRI	ICS	NL reachability information
NLSP	ICS	NL security protocol
NM	ICC, ICS	Network management
NOR	CPDLC, ICC, ULA	No orderly release
NOTAM	FIS	Notice to Airmen
NPAI	N/U	Network protocol address information
NPDU	ICS	Network protocol data unit
NR	CPDLC, ICC, MHS, ULA	Negotiated Release
NRN	MHS	Non-Receipt Notification
NS	P1, SLR, ADS, CM, CPDLC, FIS, ICC, MHS, ULA, ICS	Network service
NSAP	P1, SLR, FIS, ICC, MHS, ULA, ICS	Network Service Access Point
NSAP address prefix	ICS	Used to identify groups of systems that reside in a given routing domain or confederation. An NSAP prefix may have a length that is either smaller than, or the same size as, the base NSAP address.
NSAPMO	N/U	NSAP MO
NSDU	ICS	NS data unit
NSMO	N/U	Network subsystem MO
O/R	MHS	Originator/recipient
OA	ADS, ULA	Overflow Accept
OCA	N/U	Object class attributes
OCN	N/U	Object class notifications

Term	Where used	Desciption
OCNB	N/U	Object class name bindings
OHI	CPDLC, MHS	Optional Heading Information
OID	MHS, ULA	Object Identifier
OOC	N/U	Operations on object classes
Open Systems Interconnection (OSI) Protocol Architecture	P1, SLR	A set of protocols used to implement the OSI reference model.
Open Systems Interconnection (OSI) reference model	P1, SLR	A model providing a standard approach to network design introducing modularity by dividing the complex set of functions into seven more manageable, self-contained, functional layers. By convention these are usually depicted as a vertical stack.
Operating Concept	P1, SLR, CM, ULA, ICS	The technical functionality of a system and its inherent capabilities regarded from the system operator's point of view. This includes the interaction between user and system, the services provided by the system as well as the internal operation of the system.
Operational Concept	P1, CM	1 Describes, from the user's point of view, the operational requirements, constraints, and prerequisites within which a technical system is supposed to work as well as the inherent capabilities of the system. It describes the interaction between the user and the system as well as the services the user may expect from the system. 2. Broad outline of an operational structure able to meet a given set of high level user requirements. It comprises a consistent airspace organisation, general operational procedures, and associated operational requirements for system support.
Operational Requirements	P1, SLR, ADS, CM, CPDLC, FIS, ICC, MHS, ULA, ICS	Refers to a set of requirements that define the operational needs and constraints within which a technical system has to operate in order to fulfil its anticipated role. The ATN operational requirements relate to ATN communications as seen from the user point of view. Operational requirements are composed of functional and non-functional requirements.
Operational Trials	N/U	Trials based on an operational environment. This includes operational systems and operational equipment, e.g. routinely scheduled flights in an operational ATS environment. Aim is to demonstrate the operational acceptance and correctness of applied mechanisms, applications, and concepts.
OR	ADS, CM, CPDLC, ICC, MHS, ULA, ICS	Operational Requirement
OSI	P1, SLR, ICC, MHS, ULA, ICS	Open Systems Interconnection
OSIE	ICS	OSI environment
OSIM	N/U	OSI management
OSISME	N/U	OSI SM environment
P		Priority
Packet	P1, SLR, ICS	The basic unit of data transfer among communications devices within the network layer.

Term	Where used	Desciption
PC	ADS, CPDLS	Personal Computer
PCI	ULA	Protocol control information
PDAI	MHS	Predetermined address indicator
PDAM	P1, SLR, ULA, ICS	Proposed Draft Addendum
PDN	N/U	Public data network
PDU	ADS, CM, APDLC, FIS, ICC, ULA, ICS	Protocol Data Unit
PDU, Protocol Data Unit	ADS, CM, APDLC, FIS, ICC, ULA, ICS	A unit of data specified in an (N)-protocol and consisting of (N)-protocol-control-information and possibly (N)-user-data, where N indicates the layer.
PDV	ULA	Presentation Data Value
PDV, Presentation Data Value	ULA	the unit of information specified in an abstract syntax, which is transferred by the OSI presentation-service (ISO/IEC 8822).
PER	ADS, CM, CPDLC, FIS, ICC, ULA	Packed Encoding Rules (of ASN.1)
Performance Management:	CPDLC, ICC	Enables the behaviour of resources and the effectiveness of communication activities to be evaluated. Includes functions to gather statistical information, maintain and examine logs of system state histories, determine system performance under natural and artificial conditions, and alter system modes of operation.
Performance Requirements	ADS, CPDLC, ICC	Requirements with respect to the performance of a system (e.g. reliability, availability, response time, processing delay, etc.) and are derived from Operational Requirements. In general, they describe the minimum performance figures that a system must provide in order to fulfil the operationally required functions.
periodic contract	SLR, ADS	A contract to provide ADS reports at regular intervals.
Physical Layer	ICC, MHS, ICS	The layer of the OSI reference model that controls access to the transmission medium which forms the basis for the communication system.
PIB	N/U	Policy information base
PIBMO	N/U	PIB MO
PICS	SLR, ULA, ICS	Protocol implementation conformance statement
PIREP	FIS	Pilot Report
Policy Information Base (PIB)	P1, SLR, MHS, ULA, ICS	Contained with a BIS, and consists of a set of policy statements specified by the Systems Manager which together describe the applicable Routing Policy.
PPDU	ULA	Presentation PDU
PR	ICC, ULA	Prepare
Presentation Layer	P1, SLR, ULA, ICS	The layer of the OSI reference model that controls the coding, format, and appearance of the data transferred to and from the application layer.

Term	Where used	Desciption
Presentation Service Selector (PSAP Selector)	MHS, ULA, ICS	The element of the presentation address that identifies the user of the presentation protocol entity.
Priority	P1, SLR, ADS, CM, CPDLC, FIS, ICC, MHS, ULA, ICS	The relative importance of a particular PDU relative to other PDUs in transit, and used to allocate resources which become scarce during the transfer process.
PRL	MHS, ULA, ICS	Profile Requirements List
PRMD	MHS	Private management domain
Profile	P1, SLR, ADS, CPDLC, ICC, MHS, ULA, ICS	Defines implementation conformance constraints on a set of reference specifications.
projected profile	ADS, ICC	An indication of where and when the aircraft anticipates it will be at the following two way-points.
Protocol	P1, SLR, ADS, CM, CPDLC, FIS, ICC, MHS, ULA, ICS	A set of rules and formats (semantic and syntactic) which determines the communication behaviour between peer entities in the performance of functions at that layer.
Protocol Control Information (PCI)	P1, SLR, ADS, CM, CPDLC, FIS, ICC, MHS, ULA, ICS	Information included in a layer header which contains service primitives specific to that layer.
Protocol Data Unit(PDU)	P1, ADS, CM, CPDLC, FIS, ICC, MHS, ULA, ICS	A unit of data transferred between peer entities within a protocol layer consisting of protocol control information and higher layer user data (i.e. service data units).
PSAP	MHS, ULA	Presentation service access point
PSDN	ICS	Packet switched data network
PT	ADS, ULA, ICS	Please Tokens
PTT	N/U	Post, telephone, and telegraph
Q		QOS Maintenance
QoS	ADS, CM, CPDLC, FIS, ICC, MHS, ULA, ICS	Quality of Service
Quality of Service (QoS)	ADS, CM, CPDLC, FIS, ICC, MHS, ULA, ICS	Information relating to data transfer characteristics (for example, requested throughput and priority) used by a router to perform relaying and routing operations across the subnetworks which make up a network.
R&R	N/U	Requirements and Recommendations
R/W	N/U	Read/write
RA	ADS, ICC	Routing area

Term	Where used	Desciption
RCP	CM, ICC	Required Communication Performance
RD	ICC, ICS	Routing domain
RD PDU	N/U	Redirect PDU
RDC	ICS	Routing domain confederation
RDF	ICS	Routing domain format
RDFD	N/U	RDF Domain [Flag]
RDI	ADS, ICC, ICS	Routing domain identifier
RDP	CM	Router Domain Part
RED	MHS	Redirection
REL	ULA	Release
Relaying	P1, SLR, MHS, ICS	The process of transferring packets across subnetworks including any necessary packet conversion.
Requested QoS	CM, ICC, MHS, ULS, ICS	The service characteristics desired by the service user.
RER	ADS, CM, CPDLC, FIS, ICC, MHS, ULA, ICS	Residual Error Rate
Reserved Value	P1, SLR, MHS, ULA, ICS	Legal values for the respective fields (have not yet been assigned specific meanings by ICAO). These values should be processed normally in order to allow future assignment. Meanings may be assigned in the future and are not available for local use. The allocation of these values requires no change in the version identifier.
Residual Error Probability	ICS	Indicates the likelihood that an PDU will be lost, duplicated, or corrupted. This probability is defined as the ratio of lost, duplicated, or corrupted NSDUs to the total number of NSDUs transmitted by an ATN NS provider, normalised for an NSDU size of 512 octets.
residual error rate (RER)	ADS, CM, CPDLC, FIS, ICC, MHS, ULA, ICS	The ratio of messages misdelivered, non-delivered, or delivered with an error undetected by the system, to the total number of messages delivered to the system during a measurement period (adapted from ISO/IEC 8072). *NOTE: for ATN, ICAO is considering not counting non-delivered messages in the total.*
RESYNC	ULA	Resynchronisation
RF	ADS, CPDLA, ULA	1. Radio frequency 2. Refuse
RFC	ICS	Request for comments
RIB	ICS	Routing information base
RJ	N/U	Reject
RL	ICC	Requirements list
RLRE	ULA	ACSE Release Response APDU
RLRQ	ULA	ACSE Release Request APDU

Term	Where used	Desciption
RLS	ULA	Release
RN	N/U	Receipt Notification
ROA	ICS	Request of Acknowledgement
ROSE	N/U	Remote operation service element
Route	P1, ADS, CM, CPDLC, FIS, ICC, MHS, ULA, ICS	The set of addresses that identifies the destinations reachable over the router, and information about the route's path including the QoS and security available over the route.
Router	P1, ICS	The communication element that manages the relaying and routing of data while in transit from an originating end system to a destination end system. An ATN router comprises an OSI intermediate system and end system supporting a systems management agent.
Routing	P1, SLR, ADS, CM, CPDLC, FIS, ICC, MHS, ULA, ICS	A function within a layer that uses the address to which an entity is attached in order to define a path by which that entity can be reached.
Routing Area (RA)	MHS, ICS	A routing subdomain comprising one or more ISs, and optionally one or more ESs.
Routing Domain	P1, SLR, MHS, ICS	A set of end systems and intermediate systems that operate the same routing protocols and procedures and that are wholly contained within a single administrative domain. A routing domain may be divided into multiple routing subdomains.
Routing Domain Confederation (RDC)	ICS	A set of Routing Domains and/or RDCs that have agreed to join together. The formation of a RDC is done by private arrangement between its members without any need for global coordination.
Routing Domain Identifier (RDI)	MHS, ICS	A generic NET as described in ISO 7498, and is assigned statically in accordance with ISO 8348. An RDI is not an address, and cannot be used as a valid destination of an ISO 8473 PDU. However, RDIs are, like ordinary NETs, assigned from the same Addressing Domain as NSAP Addresses.
Routing Information Base(RIB)	P1, SLR, ADS, CM, CPDLC, FIS, ICC, MHS, ULA, ICS	A data base that is maintained by each router and comprises the information regarding the connectivity and topology of the ESs and ISs within a particular Routing Domain and path information pertinent to paths interconnecting Routing Domains. It is maintained by way of the information received by a routing information exchange protocol. Each Routing Information Exchange Protocol has its own RIB specification.
Routing information exchange protocol	P1, SLR, ADS, CM, FIS, MHS, ULA, ICS	The protocol used to exchange subnetwork connectivity information between end systems and intermediate systems and between intermediate systems and intermediate systems.

Term	Where used	Desciption
Routing Policy	P1, SLR, ICC, MHS, ULA, ICS	1. A set of rules that control the selection of routes and the distribution of routing information by ATN Boundary Intermediate Systems (BISs). These rules are based on policy criteria rather than on performance metrics such as hop count, capacity, transit delay, cost, etc. which are usually applied for routing. There are two groups of routing policy in the ATN: (1) general routing policy specified in the ATN Internet SARPs in order to ensure necessary connectivity in the ATN at a reasonable routing information update rate and (2) user specified routing policy, i.e. individual policy rules which may be additionally implemented in ATN BISs by administrations and organisations to meet their specific operational and policy needs. 2. The set of rules in a BIS that determines the advertisement and use of routes is known as a Routing Policy. Each organisational user of the ATN must determine and apply their own Routing Policy.
RPF	N/U	Reference publication format
RPOA	N/U	Recognised private operating agency
RTE	N/U	Receiving TE
RTSE	SLR, MHS, ICS	Reliable transfer service element
S/T	ICS	Segmentation over transit delay flag
SAC	ULA	Short Accept
Safety Case	ADS, ULA, ICS	An analysis presenting an overall justification for the declaration that a particular systems satisfies its safety requirements.
SARPs	P1, SLR, ADS, CM, CPDLC, FIS, ICC, MHS, ULA, ICS	Standards and Recommended Practices
SCN	ULA	Short Connect
SDU	ICS	Service data unit
SEC	MHS	Security
Security Label	MHS, ULA, ICS	May indicate requirements for protection of a PDU and provide information used by network layer access control functions.
Security Management	P1, SLR, ADS, CM, CPDLC, ICC, MHS, ULA, ICS	To support the application of security policies by means of functions which include the creation, deletion and control of security services and mechanisms, the distribution of security-relevant information, and the reporting of security-related events.
SEL	CM, MHS, ICS	(Transport) Selector
Service Data Unit	P1, ADS, CM, CPDLC, FIS, ICC, MHS, ULA, ICS	A unit of data transferred between adjacent layer entities, which is encapsulated within a PDU for transfer to a peer layer.

Term	Where used	Desciption
Service primitive	ADS, CM, CPDLC, FIS, ICC, MHS, ULA, ICS	A function of an ASE that is not broken down further into subfunctions, and is presented as part of the abstract service interface (i.e. request, indication, response, or confirmation).
Service Provider	P1, ADS, CM, CPDLC, FIS, ICC, MHS, ULA, ICS	The ground and airborne AEs for the application, all underlying data communication protocol entities and the physical media. As a consequence, it encompasses everything between the Application-AE service interfaces of the peer end-users of the application.
Session layer	P1, SLR, MHS, ULA, ICS	The layer of the OSI reference model that establishes the rules of dialogue between two end-user entities.
Session Service Selector (SSAP Selector)	MHS, ULA	The element of the session address that identifies the user of the session protocol entity.
Short TSAP	CM, MHS, ULA	Composed of the ARS, the LOC, the SYS, and the SEL.
SHORT-CP	ULA	Short Connect PPDU
SHORT-CPA	ULA	Short Connect Accept PPDU
SHORT-CPR	ULA	Short Connect Reject PPDU
SICASP	ICS	SSR Improvements and Collision Avoidance Systems Panel
Single Homed ERD	N/U	An ERD that is in communication with one other RD only.
SM	ULA	Systems management
SMA	ULA	SM application
SMAE	N/U	SM AE
SME	ICS	SM entity
SMF	N/U	SM function
SMFA	N/U	SM functional area
SN	ADS, ICS	Subnetwork
SN-SME	ICS	SN SME
SNAcF	N/U	SN access function
SNAcP	SLR, ICS	SN access protocol
SNCR	ICS	SN connection reference
SNDCF	SLR, ICS	SN dependent convergence function
SNDCP	N/U	SN dependent convergence protocol
SNICF	SLR, ICS	SN independent convergence function
SNICP	N/U	SN independent convergence protocol
SNL	N/U	SN layer
SNOWTAM	N/U	Snow NOTAM
SNP	N/U	Sequence number PDU
SNPA	ICS	SN point of attachment
SNQOS	ICS	SN QoS
SNS	ICS	SN service
SNSDU	ICS	SN SDU

Term	Where used	Desciption
SP	ADS, CM, MHS, ULA, ICS	1. SN Processor 2. Segmentation permitted flag
Spare Value	ADS, CM, CPDLC, FIS, MHS, ULA, ICS	A value for which no meaning is currently defined. These values are available by the administering authority for local use, and may be assigned in the future.
SPDU	MHS, ULA, ICS	Session PDU
SPI	ICS	Subsequent protocol identifier
SPM	ULA	Session Protocol Machine
SRC-REF	N/U	Source reference
SRF	ULA	Short Refuse
SS	CM, MHS, ULA, ICS	1. Symmetric Synchronise 2. Session Service
SSR	CPDLC, ICS	Secondary surveillance radar
ST/SYS	MHS	Storage and transfer system
Stack (or protocol stack)	MHS	A set of co-operating OSI protocols selected from different layers of the basic reference model. Hence, “upper layer stack” refers to session, presentation, and application protocols, while “lower layer stack” refers to physical, data link, network, and transport protocols.
STE	N/U	Sending TE
Subnetwork	P1, SLR, MHS, ICS	An actual implementation of a data network that employs a homogeneous protocol and addressing plan, and is under control of a single authority.
Subnetwork Access Facility (SNAcF)	P1, ICS	The subset of the OSI network layer that provides the interface with the data link layer and is specific to a particular subnetwork.
Subnetwork Access Protocol (SNAcP)	P1, SLR, MHS, ICS	The actual protocol used to receive services form a particular subnetwork. For example, the subnetwork access protocol to many public data networks is X.25.
Subnetwork Dependent Convergence Function (SNDCF)	P1, ICS	The set of rules and procedures needed to convert the data transfer needs of the subnetwork independent convergence protocol to the actual services provided by a subnetwork.
Subnetwork Domain	P1, SLR, MHS, ICS	The set of end systems and intermediate systems connected to the same physical network.
Subnetwork Independent Convergence Function (SNICF)	P1, ICS	The common protocol for all ATN host computers and routers that is used for the transfer of data. In the ATN internet, the SNICF is the connectionless network protocol defined by ISO 8473.
Subnetwork Point of Attachment (SNPA)	MHS, ICS	The point at which a real end system, interworking unit, or real subnetwork is attached to a real subnetwork, and is a conceptual point within an end or intermediate system at which the subnetwork service is offered.
Subnetwork Point of Attachment (SNPA) Address.	ICS	Provides information used in the context of a particular real subnetwork to identify a SNPA. An SNPA address is a subnetwork address such as X.25 DTE Addresses, Ethernet MAC Addresses, etc.

Term	Where used	Desciption
Subnetwork sublayer	N/U	A component of the OSI reference model that provides the protocol mechanism for data transfer between peer entities within the same subnetwork. This sublayer is an implementation of the OSI subnetwork access facility (SNAcF).
SY	ICC, ULA	Minor Synchronise
SYS	CM, MHS, ICS	System Identifier
SYS4	ICS	SYS 4th Octet [Flag]
SYS5	ICS	SYS 5th Octet [Flag]
SYS6	ICS	SYS 6th Octet [Flag]
Systems Management	P1, SLR, ADS, CM, ICC, MHS, ULA, ICS	The set of functions related to the management of various OSI resources and their status across all layers of the OSI architecture.
Systems Management Application Entity (SMAE)	P1, CM, ICC, MHS, ULA, ICS	An application entity for the purpose of systems management communications.
Systems Management Function	P1, SLR, ADS, CM, ICC, MHS, ULA, ICS	The monitoring, controlling, operating, supervising, co-ordination, and administration of a communications network.
T		Tidemark
T/C	CPDLC, ICC, ICS	Transit delay over cost flag
T/SYS	MHS	Transfer system
TC	MHS, ULA, ICS	Transport connection
TCIVMO	N/U	TC IVMO
TCMO	N/U	TC MO
TCP	N/U	Transmission control protocol
TCQIVMO	N/U	TC QoS IVMO
TD	CPDLC, ICC, ULA	Typed Data
TE	ICS	Transport entity
TEMO	N/U	TE MO
TI	CPDLC, MHS	Transmission identification
TLE	N/U	Transport layer entity
TP4	N/U	Transport protocol class 4
TPDU	ICS	Transport protocol data unit
TPDU-NR	N/U	TPDU send sequence number
TR	P1, SLR, FIS, MHS, ULA, ICS	Technical report

Term	Where used	Desciption
Traffic Type	P1, SLR, ADS, CM, CPDLC, FIS, ICC, MHS, ULA, ICS	The data conveyed by the ATN is divided into four traffic types: ATN Operational Communications representing safety and regularity of flight communications, ATN Administrative Communications representing non-safety and regularity of flight communications sent by aircraft operating agencies and ATS administrations, General Communications representing APC, public correspondence, and other non-operational and non administrative communications, and ATN Systems Management Communications representing systems management information that is critical for support of network operations. The differentiation of traffic types is required because different data traffic may have different access to subnetworks. The traffic type is conveyed in the ATN Security Label of ISO 8473 (CLNP) and ISO 10747 (IDRP) PDUs. It is used to qualify (CLNP) data packets and (inter-domain) routes according to the class of traffic that they carry. Based on this qualification, access of subnetworks is controlled at the ATN Internet level.
Transit Routing Domain (TRD)	P1, SLR, ICS	A domain whose policies permit its BISs to provide relaying for PDUS whose source is located in either the local routing domain or in a different routing domain.
Transport layer	P1, SLR, MHS, ULA, ICS	The layer of the OSI reference model that assures reliable end-to-end transfer between transport service users.
Transport service (TS) user	N/U	The entity that uses transport layer services.
Transport Service Access Point (TSAP)	P1, SLR, MHS, ULA, ICS	The logical access point to the transport layer.
Transport Service Access Point (TSAP) address	N/U	The complete communications address which unambiguously defines a transport service user. The TSAP address comprises the NSAP address and a TSAP-selector.
Transport Service Access Point Selector (TSAP Selector).	MHS, ICS	The element of the transport address that identifies the user of the transport protocol entity.
TRD	ICS	Transit routing domain
TS	ULA, ICS	Transport service
TSAP	CM, MHS, ULA, ICS	Transport Service Access Point
TSAPMO	N/U	TSAP MO
TSDU	P1, SLR, ICS	TS data unit
TSMO	N/U	Transport subsystem MO
TSN	N/U	Tag set name
TWDL	N/U	Two-Way Data Link
TWS	FIS	Terminal Weather Service
U		User option
UA	MHS	User agent
UC	CPDLC, FIS	Update Contract
UD	ICS	Unit data

Term	Where used	Desciption
UHF	N/U	Ultra high frequency
Update Contract	P1, ADS, FIS	A contract to provide a piece of FIS information and any update of this information.
Upper layers	P1, SLR, ADS, CM, CPDLC, FIS, ICC, MHS, ULA, ICS	A term pertaining to the session, presentation, and application layers of the OSI reference model.
User Requirements	P1, SLR, ADS, CM, CPDLC, FIS, ICC, MHS, ULA, ICS	A discription of what users expect to obtain from the system (not how the system should do it). They are usually expressed on a high level and do not include technical details. The direct user of the ATN is an application within an end system supporting Air Traffic Management or Aeronautical Industry functions. The Air Traffic Controller, other ground staff, or the Pilot are the human beings using directly, or indirectly, the ATN. The user may also be seen more on the abstract level as an organisation, e.g. airline or air navigation service provider.
UTC	P1, SLR, ICC, MHS	Co-ordinated Universal Time
Validation	ICS	In the ICAO context, a process that ensures that systems meet user requirements to an agreed level of confidence and can be produced from written SARPs and Guidance material. One has to distinguish between performance based and functional validation. Single subsystems of the ATN, like routers, may be validated on a functional basis; validation of the ATN's suitability with respect to network performance etc. requires definition of performance requirements.
VC	CPDLC, MHS, ICS	Virtual circuit
VDL	ICS	VHF data link
VER	ICS	Version
Very High Frequency (VHF)	CPDLC, ULA, ICS	A frequency band from 30 to 300 megahertz.
VHF	CPDLC, ULA, ICS	Very high frequency
VHF Data Link (VDL)	CPDLC, ICC, ULA, ICS	Packet data communications to aircraft and ground users comprised of airborne VHF data radios (VDRs), VHF ground stations, and connectivity to routers on the aircraft and the ground.
Virtual circuit priority	ICS	The priority associated with a connection (virtual circuit) which is established between two systems prior to the transmission of data.
WAN	ICS	Wide area network
Wide Area Network (WAN)	ICS	Networks used to interconnect geographically dispersed routers and host computers. These subnetworks may be internally complex packet switching entities of their own, or they may be as simple as point-to-point dedicated lines.
WR	FIS, ICC, ICS	Receive window value
WS	CPDLC	Send window value
WX	ICS	Weather

Term	Where used	Desciption
X	ICS	Hexadecimal
X.25 Packet Switched Data Network (PSDN)	ICS	A communications network that provides a network access service in compliance with CCITT Recommendation X.25.
XF-Address	MHS	Translated address
YR-EDTU-NR	ICS	Expected ED TPDU sequence number in EA (‘your ED TPDU number')
YR-TU-NR	ICS	Expected TPDU sequence number (‘your TPDU number')