

# Day 1 – Session 1

## Introduction



ATS Messaging Management Centre



# ATS Messaging Management Centre (AMC)

## ATS Messaging Management Centre

- ❖ EUROCONTROL's air traffic services (ATS) messaging management centre (AMC) provides **off-line** network management services to support European air navigation service providers' (ANSPs) ground ATS messaging network and coordinates with communication and management centres in other ICAO Regions.

## ATS Messaging Management Centre

- ❖ The ATS Messaging Management Manual (EUR Doc 021) describes the framework in which the off-line network management services of the ATS Messaging Management Centre (AMC) are provided to States/ANSPs in the ICAO EUR Region, and, in a more limited manner, to States/ANSPs in other Regions.

## ATS Messaging Management Centre

- ❖ ATS Messaging refers to the integrated, heterogeneous messaging environment made of AFTN, CIDIN and AMHS.

## The goal of the ATS Messaging Management Centre

- ❖ facilitates the transition from CIDIN/AFTN to AMHS;
- ❖ provides new tools in support of AMHS operation, address management and user capabilities management, that will serve during transition and in the target AMHS network.

## The goal of the ATS Messaging Management Centre

- ❖ When States in the ICAO Region implement AMHS, transition is complex to manage and proper coordination between COM Centres is an essential requirement to ensure the overall ATS Messaging quality of service. It is therefore recommended that every State implementing AMHS should participate in AMC activities.

## Off-line management functions provided by AMC

- ❖ **Operations functions (AMF-O)**  
Support to States with AMHS in operation
- ❖ **Implementation support functions (AMF-I)**  
Support to States on their way to implement AMHS

## ICAO State Letter & EANPG Conclusion

**EANPG Conclusion 49/24** – AMHS Messaging Management Centre Users  
“That ICAO be invited to address States outside the ICAO EUR Region to register with the AMC as external COM centre operators, as soon as possible.”

**ICAO State Letter 09-34** (dated 14th April 2009, “a response to the EANPG conclusions above”):

In the short- to medium-term, ICAO will utilize the European ATS Messaging Management Centre (AMC), provided by EUROCONTROL, to coordinate the allocation and management of AMHS addresses.

All States are therefore invited to designate representatives to register as AMC users [...].

All States and/or ANSPs, operating international COM Centres, with the intention of implementing AMHS in the foreseeable future, should engage themselves into the AMHS address coordination process without delay.

## Establishment of the MIDAMC

- Initially AMC provide external COM user access to some operational functions (ex. address management). Other operational functions like Routing Management was only limited to EUR users. Therefore, ICAO MID Region established MIDAMC Platform to provide all necessary functions to the MID Users.
- The MIDAMC platform was launched on 12/12/2012, hosted and managed by the MIDAMC Team in Jordan.
- All MID states have signed MoUs with Jordan to participate in this project.
- The MIDAMC team has provided Technical support to MID Region AFS Network.
- The MIDAMC Project has been managed by the MIDAMC Study Group (MIDAMC STG) under the CNS SG.

## **MIDANPIRG/18 meeting (15-22 February 2021)**

- The meeting was informed that the EUR AMC decided to provide External COM users similar access like EUR users. Thus, the routing management function can be used by all AMC users globally.
- The meeting agreed that there is no need to keep using the MIDAMC Web Application and that the EUR AMC should be used by all MID users.
- The MIDAMC team will continue carrying out coordination and operation support roles.

### ***MIDANPIRG CONCLUSION 18/34: MIDAMC OPERATION EFFICIENCY***

***That, in order to enhance the MIDAMC operation efficiency, States are encouraged to:***

- a) update their MIDAMC focal point(s);***
- b) register MIDAMC users on the EUR AMC as external AMC operator, in coordination with the MIDAMC Team by 1 March 2021;***
- c) note that the MIDAMC web application will be withdrawn by 1 April 2021; and***
- d) nominate SMEs to join the MIDAMC Team. A training on MIDAMC operation will be arranged for new MIDAMC members.***

## MIDANPIRG/18 meeting (15-22 February 2021)

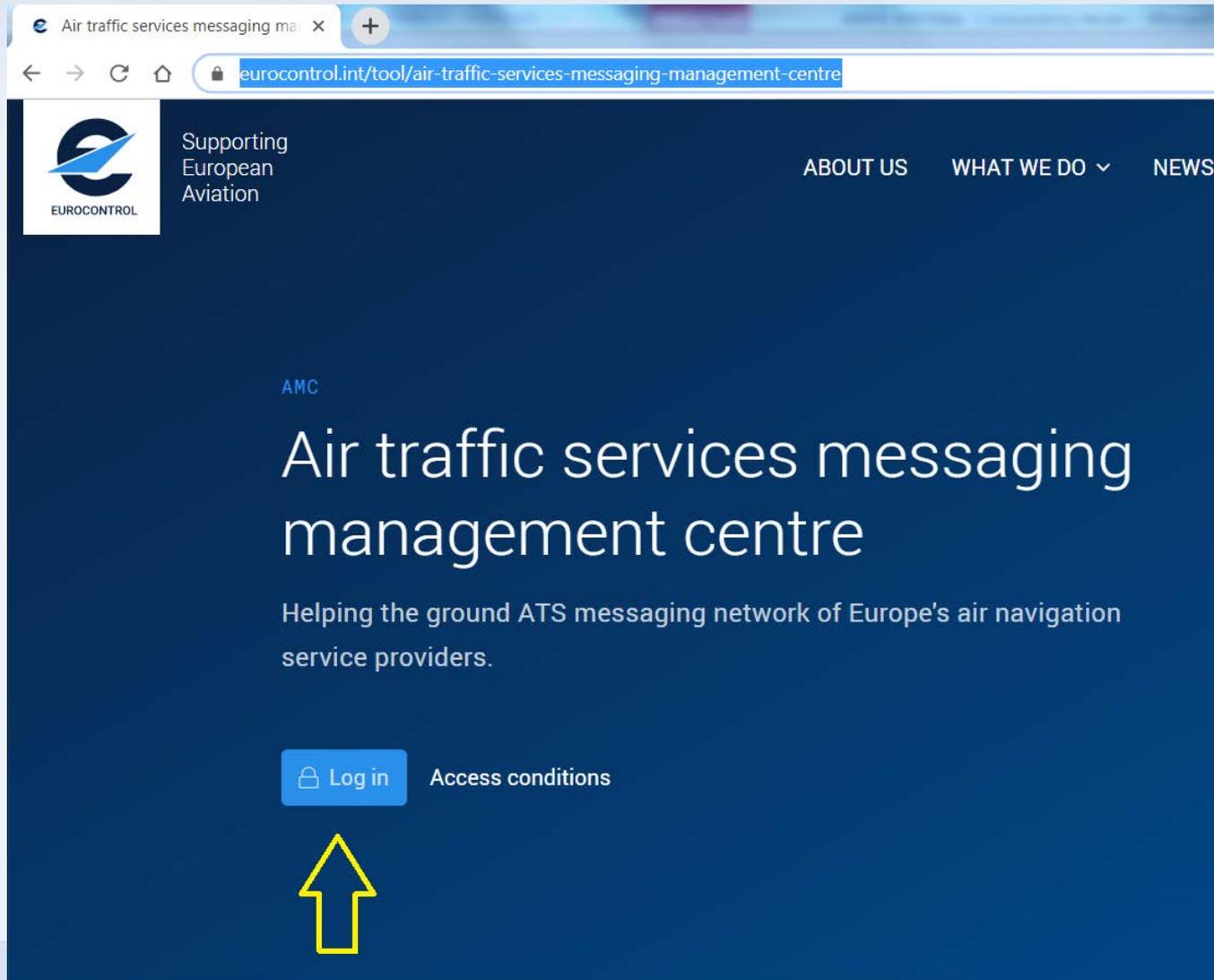
The MIDANPIRG/18 meeting agreed on the need to organize a refresher training on the use of the AMC functions, inter-alia, using the routing management function and developing routing directory.

### ***MIDANPIRG CONCLUSION 18/35: AMC OPERATION WEBINAR***

***That, in order to provide the MIDAMC users with the required knowledge on the use of the AMC functions and tools, a Webinar on AMC operation be organized in March 2021, by the ICAO MID Office and the MIDAMC Team.***



# Logging to AMC



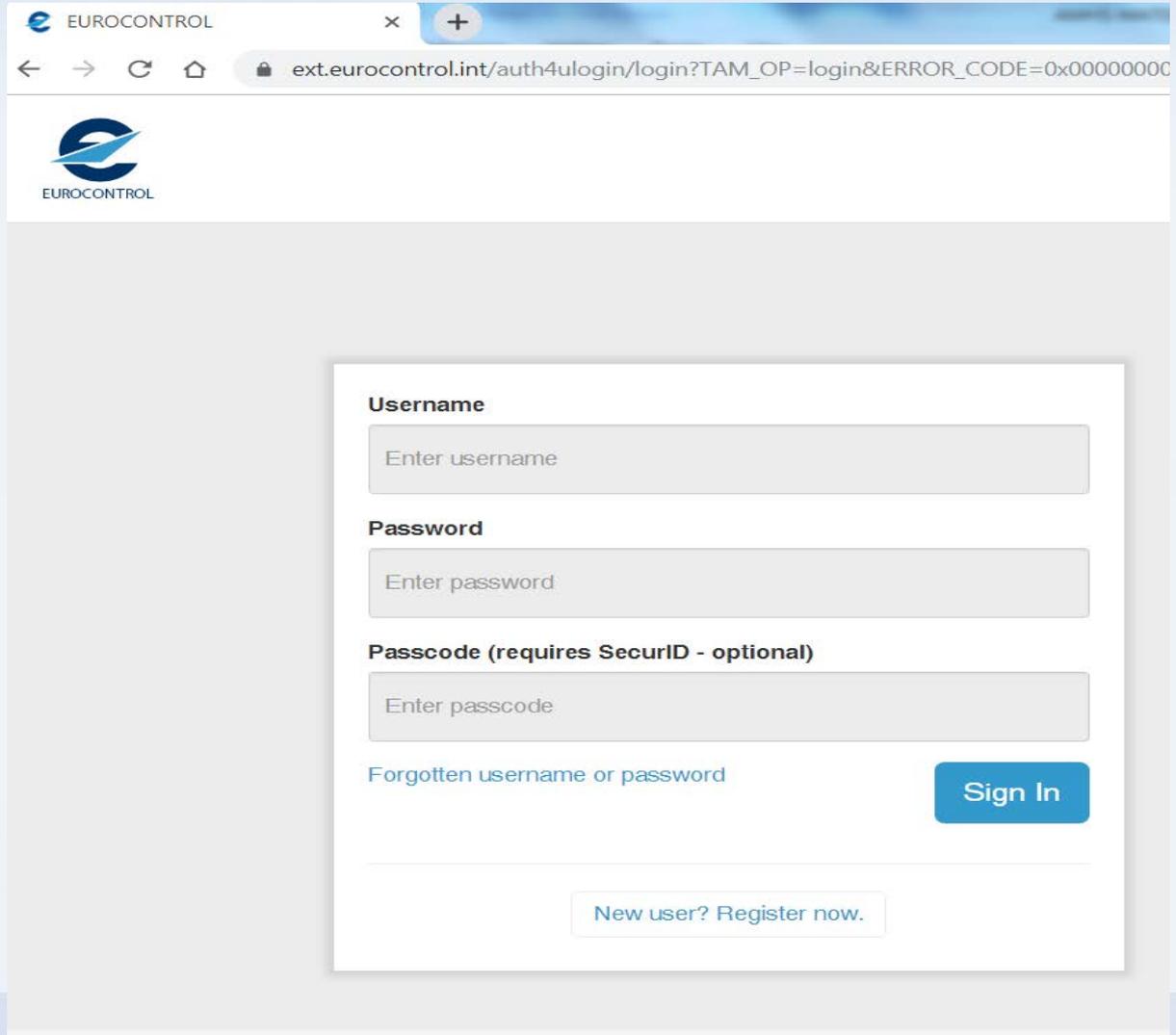
The screenshot shows a web browser window with the URL `eurocontrol.int/tool/air-traffic-services-messaging-management-centre`. The page features the Eurocontrol logo and the text "Supporting European Aviation". A navigation menu includes "ABOUT US", "WHAT WE DO", and "NEWS". The main heading is "Air traffic services messaging management centre" with the sub-heading "AMC". Below the heading is the text "Helping the ground ATS messaging network of Europe's air navigation service providers." At the bottom, there is a blue "Log in" button with a lock icon and a link for "Access conditions". A yellow arrow points to the "Log in" button.

Air traffic services messaging management centre

Helping the ground ATS messaging network of Europe's air navigation service providers.

[Log in](#) [Access conditions](#)

# Logging to AMC



The screenshot shows a web browser window with the EUROCONTROL logo in the top left corner. The address bar displays the URL: `ext.eurocontrol.int/auth4u/login/login?TAM_OP=login&ERROR_CODE=0x00000000`. The main content area features a login form with the following elements:

- Username**: A text input field with the placeholder text "Enter username".
- Password**: A text input field with the placeholder text "Enter password".
- Passcode (requires SecurID - optional)**: A text input field with the placeholder text "Enter passcode".
- [Forgotten username or password](#): A link located below the passcode field.
- Sign In**: A blue button located to the right of the "Forgotten username or password" link.
- [New user? Register now.](#): A link located at the bottom of the form.

# AMC Home page



## View Operational Data

- ▶ Network Inventory
- ▶ Routing Directory
- ▶ Address Management
- ▶ User Capabilities Management
- ▶ Static Report
- ▶ COM Charts

## View Pre-Operational Data

- ▶ Network Inventory
- ▶ Routing Directory and ACK
- ▶ Address Management
- ▶ User Capabilities Management
- ▶ Static Report (updated data)

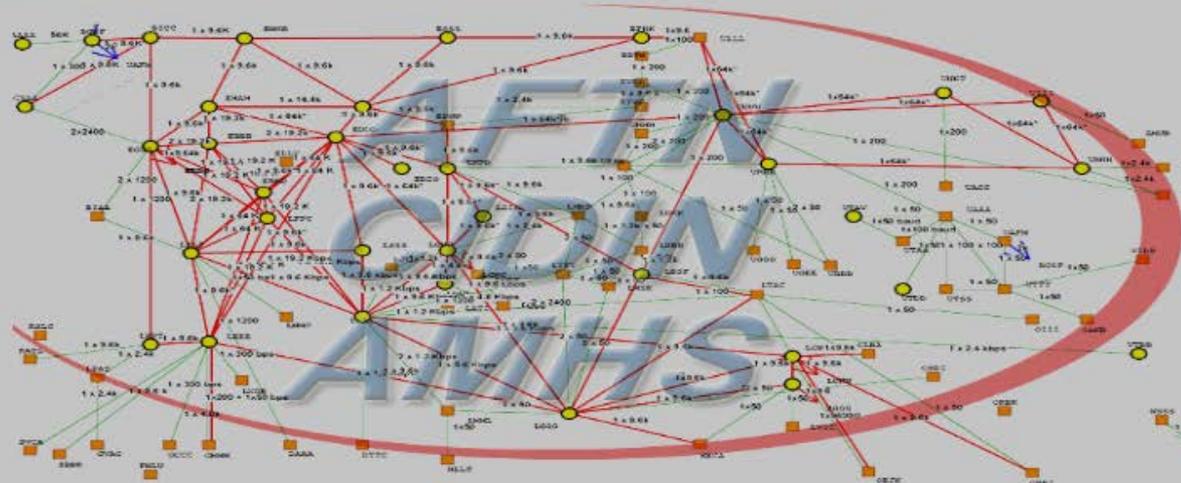
## Enter Background Data

- ▶ Network Inventory
- ▶ Address Management
- ▶ User Capabilities Management

## Miscellaneous Functions

- ▶ Support Functions
- ▶ View Bulletin Board
- ▶ View AIRAC Cycle
- ▶ AMC Operator Details
- ▶ Documentation Part of AMRD
- ▶ Path Function

## ATS Messaging Management



Welcome : OWENAH Maisoon  
You last logged in on : 03/04/2021 at 18:13 UTC  
Bulletin Board last updated on : 02/04/2021

Current day in the AIRAC cycle : 10  
AMC phase : Data Validation and Processing Phase  
There are currently 245 COM Centre(s) locked

Friday 2nd April 2021

OPER.222 Day 8.

Dear Colleagues,

All Comm Centres have been locked for the AMC to prepare Routing Matrix OPER .222

Best regards

AMC Team [amc.operator@nats.co.uk](mailto:amc.operator@nats.co.uk)

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# Menu and Window Structure

The screenshot shows a web browser window titled "Network Inventory - Persons & Contacts - Operational - Microsoft Internet Explorer". The address bar shows the URL: [https://extranet.eurocontrol.int/http://prisme-web.hq.corp.eurocontrol.int/amc-test/protected/NetworkInventory\\_PersonsContactsLoad.do](https://extranet.eurocontrol.int/http://prisme-web.hq.corp.eurocontrol.int/amc-test/protected/NetworkInventory_PersonsContactsLoad.do). The application interface is titled "ATS Messaging Management" and "Operational Area". It features a navigation menu on the left and a main content area with tabs for "Persons & Contacts", "Com Centres", "AFTN / CIDIN Capabilities", "AMHS Capabilities", "VCG's", and "Connections". The "Persons & Contacts" tab is active, displaying a table of personnel data.

**Menu (functions)** (Left sidebar):

- View Operational Data
  - Network Inventory
    - Routing Directory
    - Address Management
    - User Capabilities Management
    - Statistics
    - Static Report
    - COM Charts
- View Pre-Operational Data
  - Network Inventory
  - Routing Directory and ACK
  - Address Management
  - User Capabilities Management
  - Statistics
  - Static Report (updated data)
- Enter Background Data
  - Network Inventory
  - Address Management
  - User Capabilities Management
  - Statistics
- Miscellaneous Functions
  - Support Functions
  - View Bulletin Board
  - View AIRAC Cycle
  - AMC Operator Details
  - Documentation Part of ENRD
  - Path Function
  - View ANP Locations
  - Regions
  - Send E-Mail to User Groups

**Main window** (Right side):

Operational Area [HELP]

Persons & Contacts / Com Centres / AFTN / CIDIN Capabilities / AMHS Capabilities / VCG's / Connections

Region: EUR/NAT | COM Centre: EDDD | Location: FRANKFURT.MAIN INTL CO | Country: Germany

MD Common Name: GERMANY | Country-Name: XX | ADMD-Name: ICAO | PRMD-Name: GERMANY

Personal Role	Firstname	Surname	Phone	E-Mail
Operator	Operator	24 H	+49 6103 707 7922	nkz@dfs.de
Technical / Oper. Supervisor	Supervisor	24 H	+496103 707 7920	nkz@dfs.de
Management	Carsten	Jabs	+496103 707 6300	carsten.jabs@dfs.de
System Administrator	Elmar	Jochem	+49 6103 707 7170	elmar.jochem@dfs.de
Operations Manager	Uwe	Kunz	+49 6103 707 7174	uwe.kunz@dfs.de
AMC Operator	Uwe	Kunz	+49 6103 707 7174	amc-operator@aim.dfs.de
AMC Operator	Stefan	vill	+496103 707 7920	amc-operator@aim.dfs.de

REPORT

Sites de confiance

# Main Window and Pop-up Structure

The screenshot shows a web application interface for 'Network Inventory - Persons & Contacts - Background - Microsoft Internet Explorer'. The main window displays a table of personnel data with columns: Personal Role, Firstname, Surname, Phone, and E-Mail. A blue dashed box highlights a record for 'Uwe Kunz', and a blue arrow points to a pop-up window titled 'Persons & Contacts - Source COM Centre : EDDO - Microsoft Internet Explorer'. The pop-up window shows detailed information for the selected record, including Personal Roles, Phones, AFTN, CIDN/AFTN, Remark, and metadata like Created by, Created on, Last Modified by, and Last Modified on.

**Main Window Data Table:**

Personal Role	Firstname	Surname	Phone	E-Mail
Operator	Operator	24 H	+49 6103 707 7922	nikz@dfs.de
Technical / Oper. Supervisor	Supervisor	24 H	+496103 707 7920	nikz@dfs.de
Management	Carsten	Jabs	+496103 707 6300	carsten.jabs@dfs.de
System Administrator	Einar	Jochem	+49 6103 707 7170	einar.jochem@dfs.de
Operations Manager	Uwe	Kunz	+49 6103 707 7174	uwe.kunz@dfs.de
AMC Operator	Uwe	Kunz	+49 6103 707 7174	amc-operator@aim.dfs.de
AMC Operator	Stefan	vWill	+496103 707 7920	amc-operator@aim.dfs.de

**Pop-up Window Data:**

**Personal Roles:** Operations Manager

**Phones:** +49 6103 707 7174

**Fax:** +49 6103 707 7925

**E-mail:** uwe.kunz@dfs.de

**Telex:**

**User Id:** UKUNZX

**AFTN:** EDDDYTYX

**CIDN/AFTN:**

**CIDN-OPMET:**

**SITA:** FRAZKYF

**Remark:**

**Created by:** AMC

**Created on:** 18/01/2007 13:20

**Last Modified by:** ukunzx

**Last Modified on:** 08/12/2007 15:18

detailed information about selected record

# Screen areas of main window

The screenshot shows the 'Network Inventory' application window. The interface is divided into several functional areas:

- SEARCH area:** Located at the top of the main content area, it includes a search bar and filters for Region (EURNAT), COM Centre (EDDD), Location (FRANKFURTMAIN INTL CI), and Country (Germany).
- RESULTS area:** A table listing network inventory items with columns for Personal role, Firstname, Surname, Phone, and E-mail.
- DETAILS area:** A form view for a selected item, showing fields for Personal Roles, Firstname, Surname, Local Title, Phones, Fax, E-mail, Telex, User Id, AFTN, CIDIR/AFTN, CIDIR/OPMET, SITA, Remark, and metadata like Created by, Created on, Last Modified by, and Last Modified on.
- ACTIONS area:** A set of buttons (CREATE, REPORT, MODIFY, DELETE, SUBMIT, CANCEL, CLOSE) located at the bottom of the details form.

SEARCH area

RESULTS area

DETAILS area

ACTIONS area





# ATS Messaging Management Centre



## Basic AMHS

## Why AMHS



AFTN is famed for its low throughput, low capacity, limited message length and unsuitability for more demanding bit-oriented applications such as the transfer of binary information



- AMHS uses open standards, X.400
- There is no message loss in AMHS network
- enhanced security capabilities
- Cost - AFTN is more expensive because of the obsolescence of its standards
- AFTN technology is based on the Telex protocols (text only, 7 or 5 bits)



# ATS Messaging Management Centre



Air traffic communications service essentially involves the processing, storage and exchange of a wide variety of aeronautical and other messages, including:

- Aeronautical information service (AIS) information such as Notices to Airmen (NOTAMs);
- Meteorological messages; " distress and urgent messages;
- Flight safety messages (flight plans, etc);
- Aeronautical administrative messages; and
- Service messages.

## ICAO DOC for AMHS

1. ICAO Annex 10, Vol. III  
Digital communication systems
2. ICAO Doc 9880:  
Manual on Detailed Technical  
Specifications for the Aeronautical  
Telecommunication Network (ATN) using  
ISO/OSI Standards and Protocols
3. ICAO Doc 9896:  
Manual on the Aeronautical Telecommunication  
Network (ATN) using Internet Protocol suite (IPS)  
Standards and Protocols.
4. ICAO EUR Doc 020

## ATS Service Levels

### 1- Basic ATS Service

Compared to the service of the AFTN, the Basic ATS Message Handling Service offers some significant improvements such as:

1. Practically unlimited message length
2. Virtually no limit on the number of addressees of a message
3. Provision of non-delivery reports
4. Indication of the subject of a message

## Extended Service Levels

### 1) Transfer Body Part (FTBP)

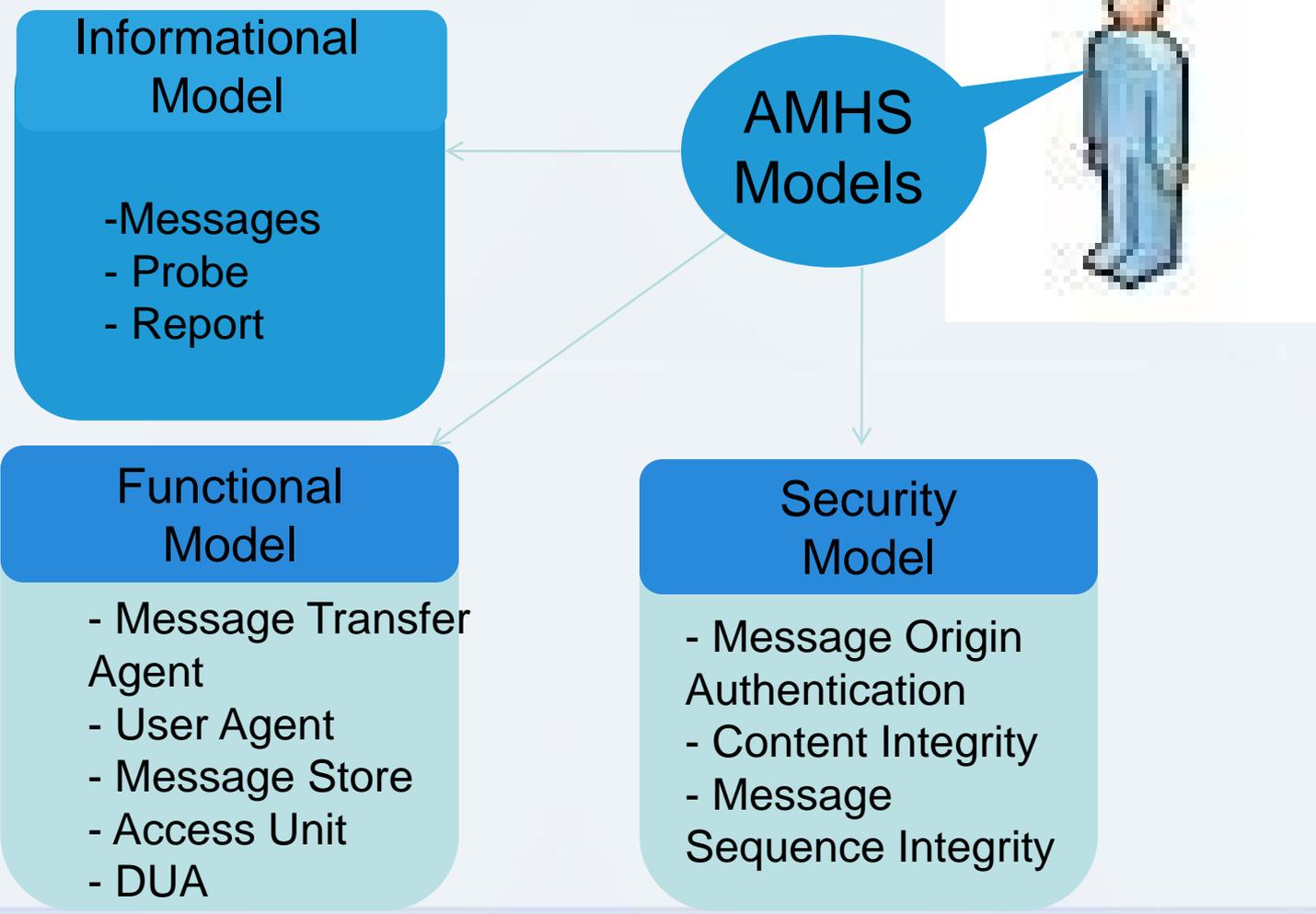
The extended ATS message service supports conveyance of binary data.

### 2) IPM Heading Extensions (IHE)

### 3) Security

**4) Directory Service:** The ATN Directory is an Electronic Directory to support Air Traffic Communications systems. It is based on the ITU-T X.500 Series Recommendations, and has been extended to support the Aeronautical Telecommunications Network, its users and applications.

## AMHS Models



## Informational Model

### 1. Message (IPM, IPN)

#### 1.1 Interpersonal Message (IPM):

IPM conveys user data to the intended user(s), the IPM consists of two parts:

- 1) The Heading.
- 2) The body.

## Informational Model

### 1. Message (IPM, IPN)

#### 1.2 Interpersonal Notification (IPN):

Interpersonal Notification (IPN) is sent to the message originator, when the originator requires an IPN (RN or NRN).

RN: Receipt Notification

NRN: Non Receipt Notification



## Informational Model

### 2. Report

Two types of Report are used in AMHS, Delivery Report (DR) and non delivery report (NDR).

The AMHS reports shall be delivered only to direct AMHS users.

## Informational Model

### 3. Probe

- Probe is initiated at a UA to find out whether an intended recipient is **reachable** by the MTS and would **accept** a user message of specified characteristics.
- The MTA serving the intended recipient verifies the specified message characteristics against registered UA parameters and depending on the verification result returns either a Delivery Report or a Non-Delivery Report.

## Informational Model

### 3. Probe (Cont'd)

- Failed routing at a transferring MTA (non-reachability) effects also a Non-Delivery-Report.
- Only direct AMHS users shall be able to submit AMHS probes.

## Functional Model

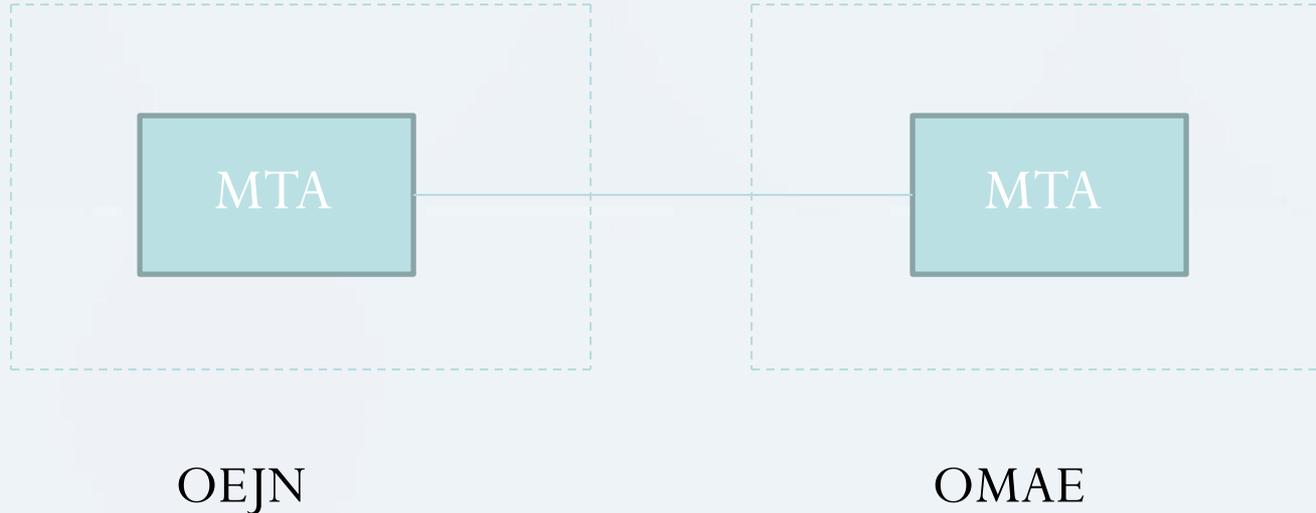
### 1- ATS Message Server

An ATS Message Server shall include a MTA and optionally one or several Message store (MS)s.

For the support of the Extended ATS Message Handling Service, an ATS Message Server shall include a DUA

## Functional Model

### 1- ATS Message Server



Message transfer agent: (MTA)

- The ATS Server accepts, relays and delivers messages in a store-and-forward mode, and serves attached ATS Message User Agents
- MTA Name should be Unique;
- Can be used for National and International MTA
- The Recommendation scheme of the MTA:
  - the term “MTA”;
  - the Location Indicator of the MTA location; and
  - a number (for future extensions if required).

- MTA Password is required when create an association with remote MTA
- The recommended scheme of default password:
  - the term “ICAO”;
  - the Location Indicator of the MTA location; and
  - the specific number of the MTA.

**ICAO-HECA-1**

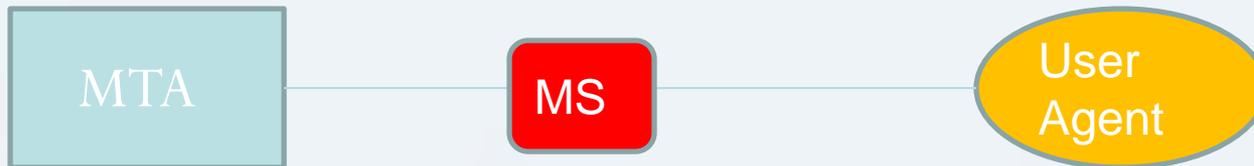
## Functional Model

### 2- User Agent

a- P3 User Agent



b- P7 User Agent

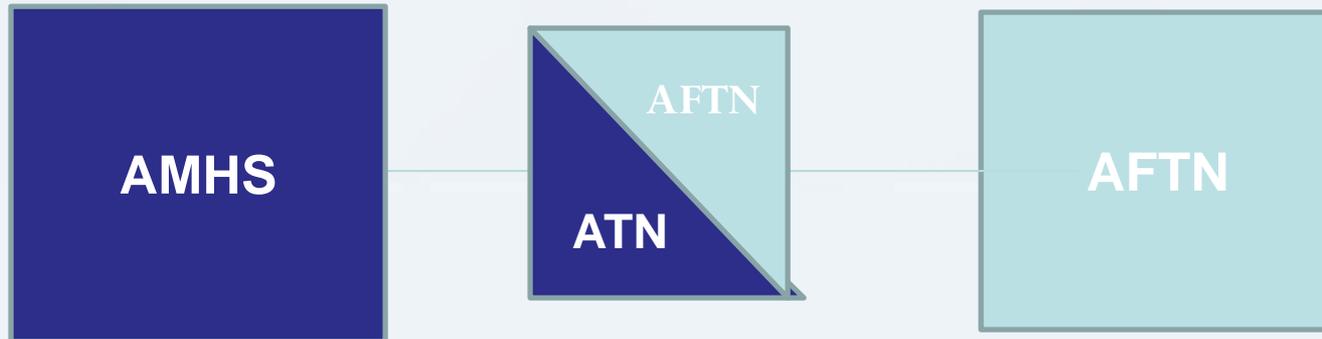


## Functional Model

### 3- AFTN/AMHS Gateway

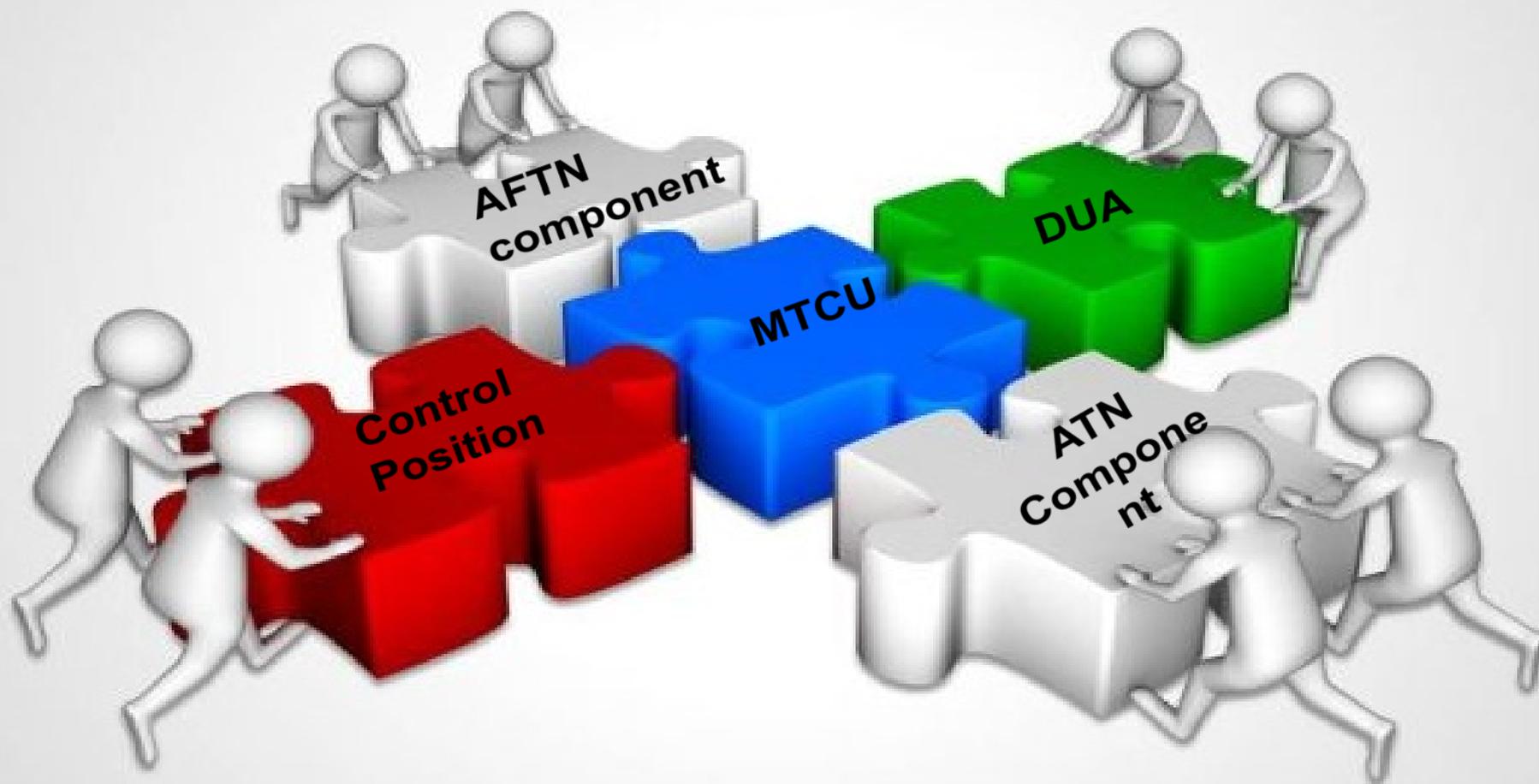
An AFTN/AMHS Gateway shall provide for an interworking between the AFTN and the ATN such that communication with other AFTN/AMHS Gateways, with CIDIN/AMHS Gateways supporting the AFTN MTCU.

## 3- AFTN/AMHS Gateway



**AFTN/AMHS Gateway**

## AFTN/AMHS Gateway



## a) AFTN Component

The AFTN Component incorporates an AFTN procedure handler providing for all AFTN functions and procedures as prescribed in Annex 10, VOL II for an AFTN station.

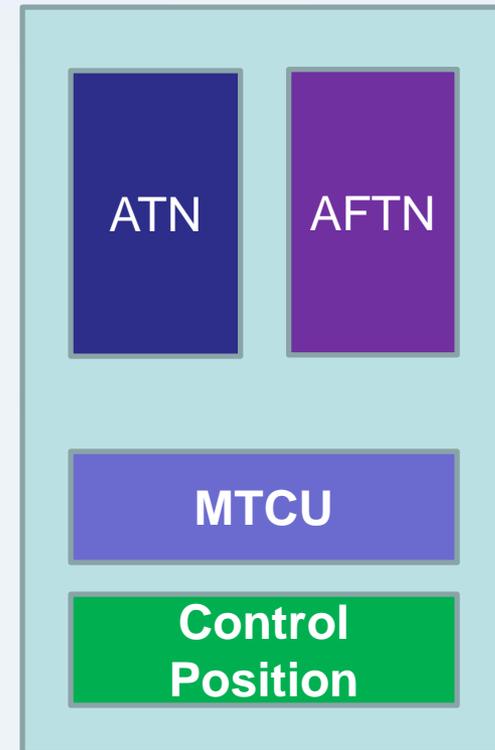
## b) ATN Component

The ATN Component incorporates an MTA complying with the profile specification for an ATS message server. In this way, the gateway is externally indistinguishable from ATS Message and can communicate with other ATS Message Servers and peer gateways

## C) Message Transfer and control Unit

The MTCU performs bi-directional conversions (mappings) between AFTN and AMHS information objects

## D) Control position: where error reported



- **X.400** is a suite of ITU-T Recommendations that define standards for Data Communication Networks for Message Handling Systems (MHS)
- P1 protocol is used explicitly for communication among MTAs,
- P3 between the user agent and an MTA
- P7 between the user agent and message store.

