



International Civil Aviation Organization

MIDANPIRG Communication, Navigation and Surveillance Sub-Group

Seventh Meeting (CNS SG/7)
(Cairo, Egypt, 31 May - 02 June 2016)

Agenda Item 4: CNS Planning and implementation in the MID Region

AFS AND MIDAMC ACTIVITIES

(Presented by the Secretariat)

SUMMARY

This paper presents the AFS planning and implementation matters through the review of the outcome of the MIDAMC STG/3 and the MSG/5 meeting.

Action by the meeting is at paragraph 3.

REFERENCES

- MIDAMC STG/3 Meeting Report
- MSG/5 MEETING Report

1. INTRODUCTION

1.1 In The Third meeting of the MID ATS Message Management Center Steering Group (MIDAMC STG/3) was held at the ICAO Middle East Regional Office in Cairo, Egypt, from 26 to 28 January 2016.

1.2 The meeting was attended by a total of twenty four (24) participants, from Eight (8) States (Bahrain, Egypt, Iran, Jordan, Kuwait, Lebanon, Saudi Arabia and United Arab Emirates) and one (1) Organization (SITA). The meeting developed four (4) Draft Conclusions and one (1) Draft Decision.

1.3 The MSG/5 meeting was held at the ICAO Middle East Regional Office in Cairo, Egypt, from 18 to 20 April 2016.

2. DISCUSSION

Removal of CIDIN

2.1 The meeting may wish to note that Five (5) MID States have CIDIN links (Bahrain, Egypt, Lebanon, Saudi, and UAE), and all these States already have AMHS system in place. The MIDAMC STG/3 meeting urged States to take necessary measures and seek the support from MIDAMC Team, and plan for removal of these outdated connection as soon as possible.

AMHS Communication Paths for ROC

2.2 The meeting may wish to note that the MIDAMC STG/3 reviewed and updated the plan to implement AMHS communication paths between Jeddah-Vienna, and Bahrain-Vienna, to enable the exchange of OPMET data in digital format between the MID and EUR Regions as at **Appendix A**. It was noted that Athens and Nicosia, which are the entry/exit points between the MID and EUR Regions, had progressed in the procurement of the AMHS.

AMHS gateway for the MID with SITA

2.3 The meeting may wish to note that SITA is currently engaged with Jordan to prepare for IP network connectivity and AMHS Interoperability Testing, which is progressing well. Similar effort is initiated for AMHS interconnection with Qatar, according to SITA-AMHS gateway interconnection topology. The MIDAMC STG/3 meeting supported the efforts and will follow-up the progress through the MIDAMC on quarterly basis or when necessary. Lebanon has an AFTN connection with SITA and is interested to migrate to IP in order to have additional connection for the Region. Furthermore, the MIDAMC STG/3 meeting discussed in detail the charges from SITA to State. SITA confirmed that they do not charge the State for the Set-up or the traffic exchange. Charges only occur if State signs contract with SITA for specific services.

2.4 The ICAO EUR AFSG/19 meeting proposed that FAA organize a Coordination Workshop in Atlanta, United States, where the SITA gateway and the Atlanta COM Centre reside in order to promote common principles, exchange information, experiences and resolve/clarify outstanding issues related to SITA interconnections and migration to AMHS.

2.5 Based on the above, the Workshop was organized (12-14 August 2015). It resulted in drafting the migration plan document and an update to the AMHS-SITA Interconnection Architecture document. The MIDAMC STG/3 meeting reviewed the current version of these documents that integrated all comments received from the Workshop participants. The MIDAMC STG/3 meeting encouraged States to further review and provide comments to the ICAO MID Regional Office by 20 February 2016, in order to share with the other ICAO Regions. However no comments were received.

2.6 The meeting may wish to note that the introduction of SITA PRMD in EUR AMC, and the SITA users addresses published in AMC on 4 February 2016 and activated on AIRAC 1603 cycle on 3 March 2016. The MIDAMC STG/3 meeting tasked the MIDAMC team to closely follow the activity and provide necessary support, and reports to the ICAO MID Regional Office any difficulties in order to share it with all concerned. In this respect, this introduction was successfully carried out in the MID Region with the excellent support from the MIDAMC.

File Transfer Body Part (FTBP) Trial

2.7 The meeting may recall that the World Meteorological Organization (WMO) initially decided to migrate from alphanumeric codes to BUFR for the representation of Meteorological data; therefore, ATS Extended service was introduced to meet the Meteorological requirement. At a later stage, the WMO decided to use XML.

2.8 The meeting may wish to note that most of the AHMS systems in the MID Region can run the extended services and especially File Transfer Body Part (FTBP), and these services can provide significant operational improvements. Accordingly, the MIDANPIRG/15 meeting agreed that trials be conducted for the use of extended services.

2.9 Based on the above, the MIDAMC STG/3 meeting agreed that a trial will be conducted between Jordan and Egypt (May 2016). In this regard, MIDAMC STG/3 meeting reviewed and updated the ATS Extended Trial Team members. Furthermore, the MIDAMC STG/3 developed

testing document for the FTBP trial. The MSG/5 meeting noted the efforts of the MIDAMC STG/3 meeting in developing the testing document for the File Transfer Body Part (FTBP) and urged States to participate in the trials. Accordingly, the meeting agreed to the following Draft Conclusion:

DRAFT CONCLUSION 5/3: FTBP TESTING DOCUMENT

*That, the First Edition of File Transfer Body Part (FTBP) Trial and Testing Document at **Appendix 5G (Appendix B)**, is endorsed; and be published as MID Document.*

Terms of References of MIDAMC STG

2.10 MIDAMC STG Terms of References (TORs) and agreed that they are still valid and current. However, it was agreed that, the MIDAMC STG to follow-up the IP Network Project until the MID CRV-OG (named Common aeRonautical VPN – Operational Group) is established. Accordingly, the meeting added this task and developed a revised TOR as at **Appendix C** and agreed to the following Draft Decision:

DRAFT DECISION 3/5: TERMS OF REFERENCE OF THE MIDAMC STG

*That, the Terms of Reference and Work Programme of the MIDAMC STG be updated as at **Appendix 6A (Appendix C)**.*

3. ACTION BY THE MEETING

3.1 The meeting is invited to:

- a) urge States to take remove CIDIN connections;
- b) review and update **Appendix A**;
- c) urge concerned States to follow-up the SITA gateway connection;
- d) review and update **Appendix B**;
- e) urge States to participate in the FTBP trials; and
- f) agree to draft decision in para 2.10

APPENDIX A

AMHS Plan for ROC in Jeddah and Bahrain					
	Task	Timeframe	Assigned to	Champion	Status
<i>AMHS Intra-regional Trunk Connections</i>					
1	Establish Jeddah – Beirut IP Network	Jul 2015	Saudi Lebanon	IM MS	
2	Establish Bahrain – Beirut IP Network	Feb 2016	Bahrain Lebanon	YH MS	Already in progress
3	Establish Cairo – Beirut IP Network	Jun 2016	Egypt Lebanon	AF//MR MS	
4	Establish Bahrain – Jeddah IP Network	Mar 2016	Bahrain Saudi	IM YH	
5	Perform the Interoperability test between Jeddah and Beirut COM centers	July 2015	Saudi Lebanon	IB MS	DONE
6	Perform the Interoperability test between Bahrain and Beirut COM centers	Feb 2016	Bahrain Lebanon	MS YH	
7	Perform the Interoperability test between Cairo and Beirut COM centers	June 2016	Egypt Lebanon	AF/TZ/MR MS/EK	Depends on IP network availability
8	Perform the Interoperability test between Bahrain and Jeddah COM centers	Mar 2016	Bahrain Saudi	YH IM	
9	Perform the Pre-operational test between Jeddah and Beirut COM centers	July2015	Saudi Lebanon	IM MS	Done
10	Perform the Pre-operational test between Bahrain and Beirut COM centers	Feb 2016	Bahrain Lebanon	YH MS	
11	Perform the Pre-operational test between Cairo and Beirut COM centers	July 2016	Egypt Lebanon	AF/ /MR MS/EK	
12	Perform the Pre-operational test between Bahrain and Saudi COM centers	July 2016	Bahrain Saudi	YH IM	
13	Place the AMHS link into operation between Jeddah and Beirut COM centers, and updating the Routing tables	Jul 2015	Saudi Lebanon MID AMC	IM MS/EK MN	Done
14	Place the AMHS link into operation between Bahrain and Beirut COM centers , and updating the Routing tables	Mar 2016	Bahrain Lebanon MID AMC	YH MS/EK MN	
15	Place the AMHS link into operation between Cairo and Beirut COM centers, and updating the Routing tables	Aug 2016	Egypt Lebanon MID AMC	AF/TZ/MR MS/EK MN	
16	Evaluate the Trunks connections bandwidth and increase it if required between (Bahrain, Beirut, Cairo and Jeddah)	Jun 2016	Bahrain Beirut Cairo Jeddah	YH MS/EK AF/TZ IM	Depends on testing of digital data exchanged

<i>The AMHS Interconnection with EUR Region Depends on Nicosia and Athens</i>					
17	Establish Cairo – Tunis IP Network	<i>March2016 July 2016</i>		AF/TZ/MR IB/MA	Both Egypt and Tunisia Ready Coordination in process to implement
18	Establish Nicosia – Beirut IP Network	<i>Awaiting reply from EUR</i>		MS/EK	Lebanon ready
19	Establish Nicosia – Jeddah IP Network	Dec 2016		IM	Saudi Arabia ready
20	Establish Bahrain – Nicosia IP Network	Dec 2016		YH	
21	Establish Cairo – Athens IP Network	Dec 2016		AF/TZ/MR	Egypt Ready Link is ready as same CIDIN link will be used
22	Perform the Interoperability test between Cairo and Tunis COM centers	<i>April 2016 August 2016</i>		AF/ /MR IB/MA	Both Egypt and Tunisia Ready Coordination in process to implement
23	Perform the pre operational test between Cairo and Tunis COM centers	<i>Q2 2016</i>		AF/ /MR IB/MA	Both Egypt and Tunisia Ready Coordination in process to implement
24	Place the AMHS link into operation between Cairo and Tunis COM centers, and updating the Routing tables	<i>May 2016</i>		AF/ /MR IB/MA	Both Egypt and Tunisia Ready Coordination in process to implement
25	Perform the Interoperability test between Athens and Cairo COM centers	Mar 2017		AF/TZ/MR IB/MA	Athens advised that their system will be installed by Dec. 2016
26	Perform the Interoperability test between Bahrain and Nicosia COM centers	Q1 2017		YH	
27	Perform the Interoperability test between Nicosia and Jeddah COM centers	Q1 2017		IM	
28	Perform the Interoperability test between Nicosia and Beirut COM centers	Q1 2017		MS/EK	Nicosia in tender process
29	Perform the Pre-operational test between Athens and Cairo COM centers	Mar 2017		AF/TZ/MR	Athens advised that their system will be installed by Dec 2016
30	Perform the Pre-operational test between Bahrain and Nicosia COM centers	Q1 2017		YH	

31	Perform the Pre-operational test between Nicosia and Beirut COM centers	Q1 2017		MS/EK	
32	Perform the Pre-operational test between Nicosia and Jeddah COM centers	Q1 2017		IM	
33	Place the AMHS link into operation between Athens and Cairo COM centers, and updating the Routing tables	Q1 2017		MIDAMC AF/ /MR	same
34	Place the AMHS link into operation between Bahrain and Nicosia COM centers , and updating the Routing tables	Q1 2017		MID AMC YH	
35	Place the AMHS link into operation between Nicosia and Jeddah COM centers, and updating the Routing tables	Q1 2017		MID AMC IM	
36	Place the AMHS link into operation between Nicosia and Beirut COM centers, and updating the Routing tables	Q1 2017		MS/EK	
37	Evaluate the inter-region connections bandwidth and increase it if required	Q1 2017		MID AMC	
38	Transition of all regional AFTN/CIDIN Connections to AMHS	Q2 2017	All MID States		

Champions:

Bahrain: (YH: Yaseen Hasan)

Egypt: (AF:Ahmed Farghally/TZ:Tarek Zaki/MR: Mohamed Ramzi/Essam Helmi: EH)

Lebanon: (MS: Mohamad Saad / EK: Elias El-Khoury)

Saudi Arabia: (IM: Mr. Ibraheem Mohamed Basheikh)

Tunis: IB: Issam Bouzid / MA: Mr. Mohamed Ali)

MID AMC/Jordan: MN: Muna Ribhi Alnadaf

APPENDIX B



**ATS Extended Services Trial
File Transfer Body Part (FTBP) Testing Document**

Author: ATS extended Services Trial Team (ASTT)
Date: 10/1/2016
Version: 0.1 (Initial Draft)

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References

- [1] ICAO Annex 10 – Aeronautical Telecommunication; Vol.II, Communication Procedure
- [2] ICAO doc 9880- Manual on Detailed Technical Specifications for the Aeronautical Telecommunication Network (ATN) using ISO/OSI Standards and Protocols, Part II – Ground-Ground Applications - Air Traffic Services Message Handling Services (ATSMHS), First Edition – 2010
- [3] EUR Doc 020 – AMHS Manual

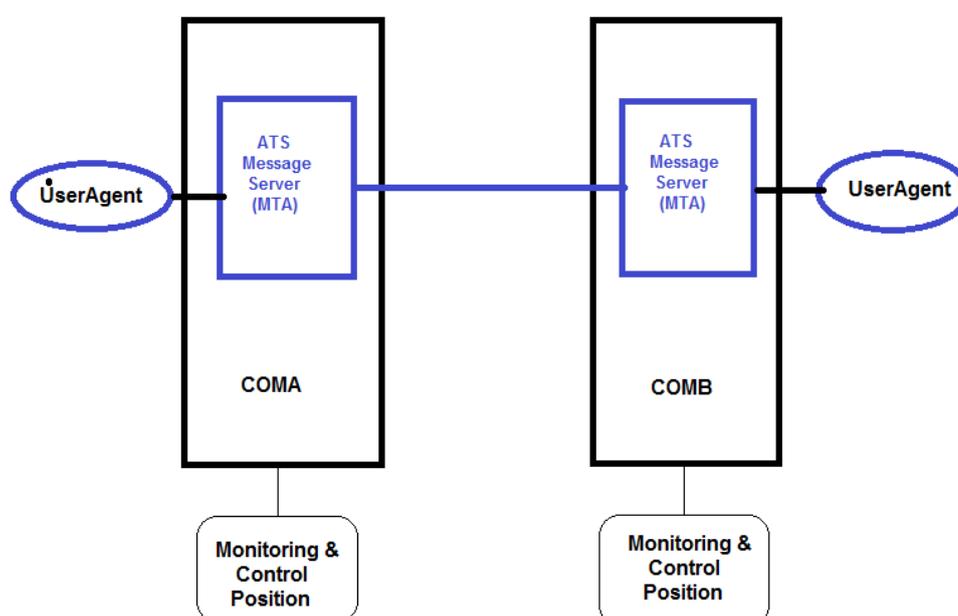
1. Introduction

The Message Handling service provided in the ATN is called the ATS Message Handling Service (ATSMHS). This service is specified using X.400 standards. There are two levels of ATSMHS service: Basic ATS Message Service and Extended ATS Message Service. Basic ATS Message Service provides a nominal capability equivalent from a user perspective to those provided by AFTN. And Extended ATS Message Service provides enhanced features such as supporting transfer of more complex message structures (body parts), use of the directory service, and support for security.

The purpose of this document is to define the functional tests for ATS Extended Service handling specially File Transfer body part (FTBP) in order to ensure the end-to-end capability of AMHS systems and network to exchange this type of messages. These tests are performed after the successful operation of AMHS basic services, through which the compliance of all systems to the AMHS technical specifications has been demonstrated and proved.

2. Test Environment

Both test systems should have operational AMHS link, and P1 connection setup. Two User Agents should be used to exchange traffic with File Transfer Body Part. The testing environment is as shown in the figure below:



The test can be performed in AMHS Network and unnecessary to have direct AMHS link between the two COM centers, the traffic can be exchanged via intermediary(ies) COM center(s), which should be involved in the test activities.

The User Agent address at COM A could be "COMAASTT", and at COM B "COMBASTT". The User Agent can be either P3 or P7 User Agent.

Network Analysis software can be used to monitor X.400 traffic and its effect on network Bandwidth. The software can be agreed on prior the test.

3. Test Procedure

Before the tests, the test partners should coordinate and document the type of body part used in IPMs submitted by their User Agents when submitting text messages, either as:

- IPMs containing a basic ia5-text body part, or
- IPMs containing an extended ia5-text body part, or
- IPMs containing a general-text body part with ISO646 repertoire.

3.1 Submission, Transfer and Delivery of a message including Binary file from UserAgent to UserAgent.

Test01	Submission of Binary file
Test Criteria	The Test is successful if COMB receive the message with Binary file attached with text message from COMA
Scenario Description	<p>From the UA of COMA send a sequence of five ATS messages (IPMs) to the COMB addressing the COMBASTT.</p> <ul style="list-style-type: none"> • Message 1 (Test011) shall have ATS-message-priority KK and binary file • Message 2 (Test012) shall have ATS-message-priority GG and binary file • Message 3 (Test013) shall have ATS-message-priority FF and binary file • Message 4 (Test014) shall have ATS-message-priority DD and binary file attached • Message 5 (Test015) shall have ATS-message-priority SS and binary file attached <p>Each message shall have different ATS-filing-time and ATS-message-text.</p> <p>Verify the messages received by the remote UA.</p> <p>In particular, verify:</p> <ul style="list-style-type: none"> • ATS-message-priority, • ATS-message-filing-time, • ATS-message-text. • The Binary file
Reference	9880

Test02	Submission of Binary file
Test Criteria	The Test is successful if COMA receive the message with Binary file attached with text message from COMB
Scenario Description	<p>From the UA of COMB send a sequence of five ATS messages (IPMs) to the COMA addressing the COMAASTT.</p> <ul style="list-style-type: none"> • Message 1 (Test021) shall have ATS-message-priority KK and binary file • Message 2 (Test022) shall have ATS-message-priority GG and binary file • Message 3 (Test023) shall have ATS-message-priority FF and binary file • Message 4 (Test024) shall have ATS-message-priority DD and binary file attached • Message 5 (Test025) shall have ATS-message-priority SS and binary file attached <p>Each message shall have different ATS-filing-time and ATS-message-text.</p> <p>Verify the messages received by the remote UA.</p> <p>In particular, verify:</p> <ul style="list-style-type: none"> • ATS-message-priority, • ATS-message-filing-time, • ATS-message-text. • The Binary file
Reference	9880

3.2 Submission, Transfer and Delivery of a message including Binary file from UserAgent to AFTN User

Test031	Submission of Binary file to AFTN User
Test Criteria	The Test is successful if COMA receive Non Delivery report (NDR) from the Gateway of COMB
Scenario Description	<p>From the UA of COMB send an ATS messages (IPMs) with binary file attached to the COMA addressing an AFTN user like the control tower COMAZTZX.</p> <ul style="list-style-type: none"> • Message 1 (Test031) shall have ATS-message-priority FF and binary file <p>Verify the messages not received by the remote AFTN User and that the sender receive NDR</p>
Reference	9880

Test032	Submission of Binary file to AFTN User
Test Criteria	The Test is successful if COMB receive Non Delivery report (NDR) from the Gateway of COMA
Scenario Description	<p>From the UA of COMA send an ATS messages (IPMs) with binary file attached to the COMB addressing an AFTN user like the control tower COMBZTZX.</p> <ul style="list-style-type: none"> • Message 1 (Test032) shall have ATS-message-priority FF and binary file <p>Verify the messages not received by the remote AFTN User and that the sender receive NDR</p>
Reference	9880

4. Test Summary

Use the Network Analysis software to analyze the traffic overhead occurred when sending binary files with the message. Also document the message size on system hard disks. Monitor any warning message or alarm during the tests.

Stress tests can be performed, by sending 20, 50 messages repeating test Test01 and Test02. Network and system response should be carefully monitored in order not affecting the life traffic.

5. ATS Extended Services Trial Team (ASTT)

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APPENDIX C

MIDAMC Steering Group (MIDAMC STG)

1. TERMS OF REFERENCE (TOR)

1.1 The Terms of Reference of the MIDAMC Steering are:

- a) to promote the efficiency and safety of aeronautical fixed services in the MID Region through the operation and management, on a sound and efficient basis, of a permanent MID Regional ATS Messaging Management Center (MIDAMC);
- b) foster the implementation of the Air traffic service Message handling service in the MID Region through provision of the guidance materials and running facilitation tools, utilizing the MIDAMC;
- c) MIDAMC Steering Group will consist of a focal point from each Participating MID State who would represent the State and acts as the Steering Group Member;
- d) MIDAMC Steering Group will be responsible for overall supervision, direction, evaluation of the MIDAMC project and will review/update the MIDAMC work plan whenever required;
- e) The MID Region is considering the establishment of Regional IP Network; the MIDAMC STG will drive the project until the Operation Group is established; and
- f) provide regular progress reports to the CNS SG, ANSIG and MIDANPIRG concerning its work programme.

1.2 In order to meet the Terms of Reference, the MIDAMC Steering Group shall:

- a) Develop/update the accreditation procedure for all users on the MIDAMC;
- b) develop and maintain guidance materials for MIDAMC users;
- c) discuss and identify solution for operational problems may be arising;
- d) provide support/guidance to States for AMHS Implementation, and monitor the AMHS activities;
- e) assist and encourage States to conduct trial on Implementation of the ATS extended services, and identify operational requirements;
- f) identify the need for any enhancement for the MIDAMC and prepare functional and technical specifications, and define its financial implications;

- g) follow-up on ICAO standards and recommendations on the ATS messaging management;
- h) define future liabilities and new participating States and ANSPs;
- i) follow-up and review the work of similar groups in other ICAO Regions; and
- j) Follow of the Reginal IP Network project and proposes appropriate actions for the early implementation also support the IP Network until the Operational Group is establish

2. COMPOSITION

- a) ICAO MID Regional Office;
- b) Members appointed by the MIDANPIRG member States; and
- c) other representatives, who could contribute to the activity of the Steering Group , could be invited to participate as observers, when required .

- END -