



Agenda Item 4: Follow up to the implementation of Air Navigation National Plans

**FOLLOW UP TO THE IMPLEMENTATION OF
THE AMHS INTERCONNECTION / IP NETWORKS**

(Presented by the Secretariat)

SUMMARY	
This working paper presents information on the activities carried out for the implementation of the AMHS interconnection and national IP networks.	
References:	
- Twenty-Third Workshop/Meeting of the SAM Implementation Group (SAM/IG/23) Lima, Peru, 20-24 May 2019.	
- Final report of the Twenty-Second Coordination Meeting of Project RLA/06/901 (RCC/12) (Lima, Peru, 23-24 August 2018).	
ICAO strategic objectives:	<i>A – Safety</i> <i>B – Air navigation capacity and efficiency</i>

1 Background

1.1 The implementation of the AMHS interconnection is one of the air navigation implementation priorities contemplated in the Declaration of Bogotá for the period 2014-2016. Consideration has been given to the implementation of 27 interconnections. All AMHS interconnections required for the SAM Region are listed in Table CNS II-1, Volume II, of the CAR/SAM Regional Air Navigation Plan (Doc 8733 eANP).

1.2 The status of implementation of all AMHS interconnections of the SAM Region and their operational implementation date are shown in **Appendix A** to this working paper.

2 Discussion

2.1 The progress reported and the actions foreseen for the implementation of the AMHS interconnection in each SAM State are shown below.

Argentina

2.2 On 25 April 2019, Argentina reported that interoperability tests (IOT) between the AMHS COM centre of Ezeiza and the SITA Type X gateway in Atlanta had been completed.

2.3 Likewise, Argentina has finished updating the software in user terminals and in the Ezeiza gateway to eliminate service elements *ipm-return* and *recipient-extensions* from AMHS messages originating in Argentina.

- Ezeiza MTA – Asunción MTA (operational)
- Ezeiza MTA – Brasilia MTA (operational)
- **Ezeiza MTA – La Paz MTA (coordination not started yet)**
- Ezeiza MTA – Lima MTA (operational since 10 May 2019)
- **Ezeiza MTA – Montevideo MTA (awaiting update of the system in Uruguay)**
- **Ezeiza MTA – Santiago MTA (tests will be resumed in June 2019)**
- **Ezeiza MTA – Johannesburg MTA (coordination not started yet)**
- Ezeiza MTA – Caracas MTA (extra-plan - coordination not started yet)
- Ezeiza MTA – SITA gateway (IOT concluded on 25 April 2019)

Bolivia

2.4 All tests between the La Paz MTA and the Lima MTA were successfully completed. Only route configuration by the operators of the COM centre of La Paz is still pending before the AMHS interconnection can become operational. At present, the following AMHS interconnections are still pending:

- **La Paz MTA – Brasilia MTA (coordination not started yet)**
- **La Paz MTA – Ezeiza MTA (coordination not started yet)**
- La Paz MTA – Lima MTA (operational since 10 May 2019)

Brazil

2.5 On 10 April 2019, IOT and POT with French Guiana were completed and POT with Atlanta is in its final phase.

- Brasilia MTA – Asunción MTA (operational)
- Brasilia MTA – Bogotá MTA (operational)
- Brasilia MTA – Caracas MTA (operational)
- **Brasilia MTA – Cayenne MTA (IOT and POT completed)**
- Brasilia MTA – Ezeiza MTA (operational)
- Brasilia MTA – Georgetown MTA (operational)
- **Brasilia MTA – La Paz MTA (coordination not started yet)**
- Brasilia MTA – Lima MTA (operational)
- **Brasilia MTA – Montevideo MTA (awaiting update of the system in Uruguay)**
- Brasilia MTA – Paramaribo MTA (operational)
- Brasilia MTA – Atlanta MTA (POT being completed)
- Brasilia MTA – Dakar MTA (coordination underway)
- Brasilia MTA – Madrid MTA (operational)
- Brasilia MTA – SITA gateway (operational)

Chile

2.6 AMHS operational implementation between the Santiago MTA and the Ezeiza MTA still pending, estimating that it will become operational in June 2019.

- **Santiago MTA – Ezeiza MTA (tests will be resumed in June 2019)**
- Santiago MTA – Lima MTA (operational)

Colombia

2.7 AMHS interconnection operational tests were successfully conducted between the Bogotá MTA and the Panama MTA through the MEVAIII/REDDIG II interconnection. For the operational implementation of this circuit, administrative arrangements need to be completed with the MEVA III service provider. The circuit goes through the MEVAIII/REDDIG II interconnection in Bogotá. The interconnection with the AMHS centre of Quito is still pending.

- Bogotá MTA – Caracas MTA (operational)
- Bogotá MTA – Lima MTA (operational)
- **Bogotá MTA – Panama MTA (pre-operational)**
- **Bogotá MTA – Quito MTA (pre-operational)**

Ecuador

2.8 The operational implementation between the Quito MTA and the Bogotá MTA is still pending, expected for May 2019.

- **Quito MTA – Bogotá MTA (pre-operational)**
- Quito MTA – Caracas MTA (operational)
- Quito MTA – Lima MTA (operational)

French Guiana

2.9 IOT and POT with the COM centres of Brasilia and Caracas still pending. These interconnections are expected to become operational by the end of May 2019.

- **Cayenne MTA – Brasilia MTA (pre-operational)**
- **Cayenne MTA – Caracas MTA (pre-operational)**

Guyana

2.10 On 11 October 2018, the interconnection between the Georgetown COM centre and the Paramaribo COM centre was restored. The operational implementation of the AMHS interconnections between the Georgetown MTA and the Caracas and Port-of-Spain MTAs is to be concluded in 2019.

- Georgetown MTA – Brasilia MTA (operational)
- **Georgetown MTA – Caracas MTA (pre-operational)**
- Georgetown MTA – Paramaribo MTA (operational)
- **Georgetown MTA – Port-of-Spain MTA (coordination not started yet)**

Panama

2.11 The interconnection with the Atlanta COM centre was completed in 2018. Regarding the status of implementation of the AMHS interconnection between the Panama MTA and the Bogotá MTA, see paragraph 2.7.

- Panama MTA – Atlanta MTA (operational)
- **Panama MTA – Bogotá MTA (pre-operational)**

Paraguay

2.12 On 15 April 2019, Paraguay informed that the updating of all user terminals had been completed to eliminate service elements *ipm-return* and *recipient-extensions* from AMHS messages originating in Paraguay.

- Asunción MTA – Brasilia MTA (operational)
- Asunción MTA – Ezeiza MTA (operationa)

Peru

2.13 Regarding interconnection activities between the Lima MTA and the La Paz MTA, see paragraph 2.4. Pre-operational interconnection tests between the Lima MTA and the Ezeiza MTA were completed in April 2019. The interconnection between the Lima MTA and the Atlanta MTA through the MEVA III/REDDIG II interconnection is foreseen for December 2019.

- **Lima MTA – Atlanta MTA (being coordinated)**
- Lima MTA – Brasilia MTA (operational)
- Lima MTA – Bogotá MTA (operational)
- Lima MTA – Caracas MTA (operational)
- Lima MTA – Ezeiza MTA (operational since 10 May 2019)
- Lima MTA – La Paz MTA (operational since 10 May 2019)
- Lima MTA – Paramaribo MTA (operational)
- Lima MTA – Quito MTA (operational)
- Lima MTA – Santiago MTA (operational)

Suriname

2.14 On 11 October 2018, the AMHS interconnection with the Brasilia and Georgetown COM centres was resumed. The interconnection with the Caracas COM centre is still pending, and expected to be established in 2019.

- Paramaribo MTA – Brasilia MTA (operational)
- Paramaribo MTA – Caracas MTA (operational)
- Paramaribo MTA – Georgetown MTA (operational)

Uruguay

2.15 The AMHS operational interconnections between the Montevideo MTA and the Brasilia MTA and between the Montevideo MTA and the Ezeiza MTA are foreseen for the end of the second half of 2019.

- **Montevideo MTA – Brasilia MTA (awaiting updating of the system in Uruguay)**
- **Montevideo MTA – Ezeiza MTA (awaiting updating of the system in Uruguay)**

Venezuela

2.16 On 10 April 2019, IOT and POT were conducted with Cayenne. Awaiting arrangements by DSN and AMC for the interconnection to become operational.

2.17 Positive tests have been conducted in May 2018 between the Caracas MTA and the Ezeiza MTA (CIPE development system), and the operational interconnection is expected for the end of the first half of 2019.

2.18 The operational interconnection between the Caracas MTA and the Atlanta, Madrid and Port-of-Spain MTAs is expected for the second half of 2019.

- **Caracas MTA – Atlanta MTA (being coordinated)**
- Caracas MTA – Brasilia MTA (operational)
- Caracas MTA – Bogotá MTA (operational)
- **Caracas MTA – Cayenne MTA (pre-operational)**
- **Caracas MTA – Curaçao MTA (coordination not started yet)**
- Caracas MTA – Ezeiza MTA (extra plan – being coordinated)
- **Caracas MTA – Georgetown MTA (pre operational)**
- Caracas MTA – Lima MTA (operational)

- **Caracas MTA – Madrid MTA (coordination not started yet)**
- Caracas MTA – Paramaribo MTA (operational)
- **Caracas MTA – Port-of-Spain MTA (coordination not started yet)**
- Caracas MTA – Quito MTA (operational)

Other AMHS considerations

2.19 The SAM Regional Office has sent a letter to all the States of the Region requesting information about the number of AFTN users remaining in each State and migration plans for these users to the AMHS environment. **Appendix B** to this working paper contains the letter sent and its attachment (table) to be completed with the information requested.

2.20 States are reminded that any change made to AMHS addressing must be reported to the EUROCONTROL ATS messaging management centre (AMC), in accordance with the procedure established in ICAO State letter AN 7/49.1-09/34 dated 14 April 2009. According to this procedure, the information must be sent to AMC by an external operator designated by the State.

National IP networks deployment

2.21 The States that still have to complete their domestic IP networks, must give the highest priority to this project and advance as quick as possible, in order to conclude national ATN deployment.

3. Suggested action

3.1 The Meeting is invited to:

- a) take note of the information presented herein; and
- b) review the activities carried out, as described in section 2 and the respective appendices.

APÉNDICE A / APPENDIX A

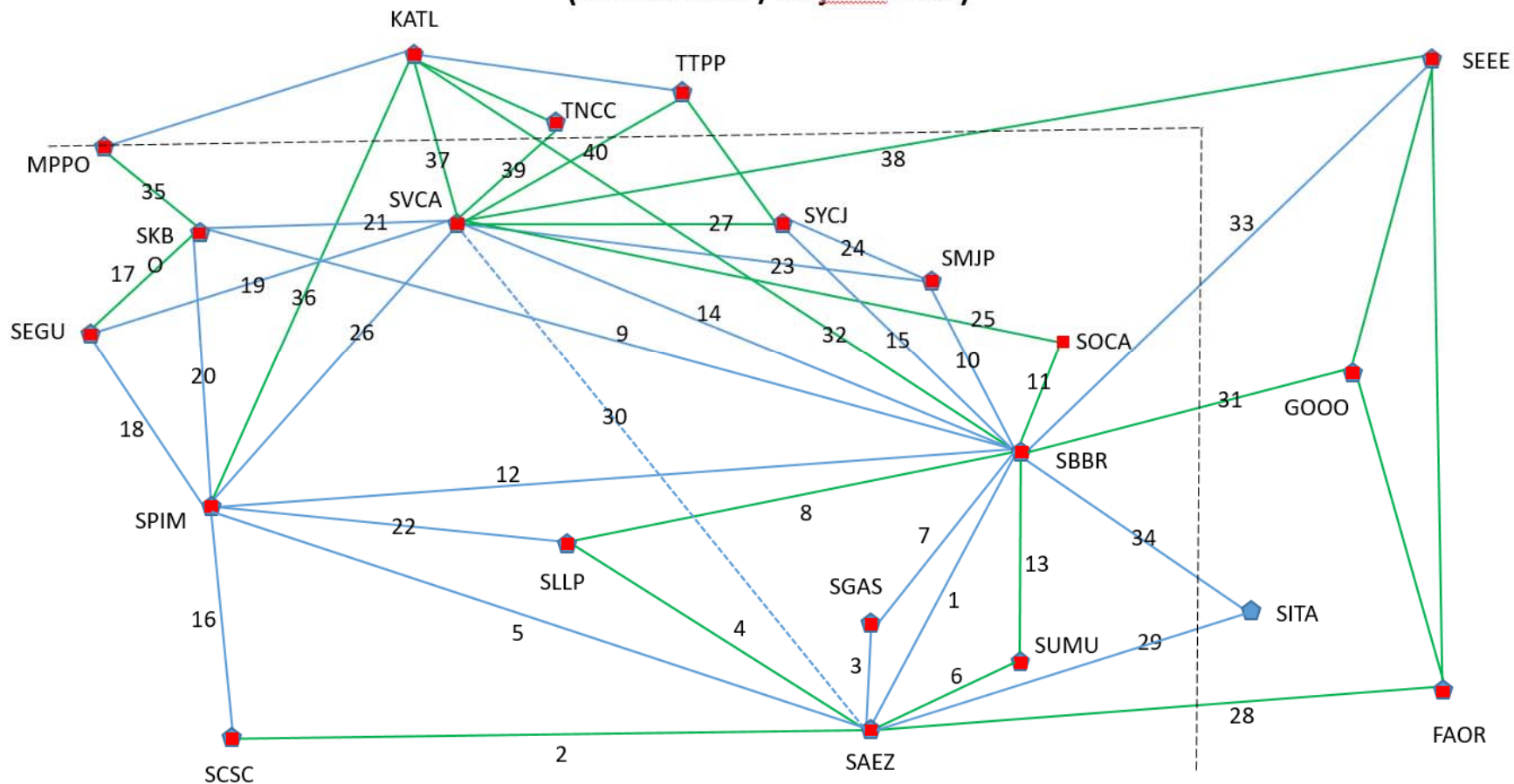
INTERCONEXIONES AMHS – REGIÓN SAM / AMHS INTERCONNECTION – SAM REGION

(11 junio 2019 / 11 June 2019)

	Conexión P1 / P1 Connection	Situación / Situation	Operativa en / Operational in	Observaciones / Notes
1	SAEZ – SBBR	Operativa / Operational	04/04/2018	
2	SAEZ – SCSC	Pre operativa / Pre-operational		Reiniciar pruebas en Jun19 / Restart testing on July 19
3	SAEZ – SGAS	Operativa / Operational	30/11/2018	
4	SAEZ – SLLP			Coordinaciones no iniciadas / Coordination not initiated
5	SAEZ – SPIM	Operativa / Operational	10/05/2019	
6	SAEZ – SUMU			Aguardase por Montevideo / Waiting for Montevideo
7	SBBR – SGAS	Operativa / Operational	30/11/2018	
8	SBBR – SLLP	En coordinación / In coordination		Estimase IOT para junio 2019 / IOT estimated for June 2019
9	SBBR – SKBO	Operativa / Operational	22/05/2017	
10	SBBR – SMJP	Operativa / Operational	11/10/2018	
11	SBBR – SOCA	Pre operativa / Pre-operational		IOT y POT concluidos / IOT and POT concluded
12	SBBR – SPIM	Operativa / Operational	14/12/2015	
13	SBBR – SUMU			Aguardase por Montevideo / Waiting for Montevideo
14	SBBR – SVCA	Operativa / Operational	28/02/2018	
15	SBBR – SYCJ	Operativa / Operational	16/07/2017	
16	SCSC – SPIM	Operativa / Operational	14/12/2015	
17	SEQU – SKBO	Pre operativa / Pre-operational		Reiniciar pruebas en junio 2019 / Restart testing on June 2019
18	SEQU – SPIM	Operativa / Operational	14/07/2012	
19	SEQU – SVCA	Operativa / Operational	11/10/2018	
20	SKBO – SPIM	Operativa / Operational	15/11/2020	
21	SKBO – SVCA	Operativa / Operational	01/12/2017	
22	SLLP – SPIM	Operativa / Operational	10/05/2019	
23	SMJP – SVCA	Operativa / Operational	30/12/2018	
24	SMJP – SYCJ	Operativa / Operational	11/10/2018	

	Conexión P1 / P1 Connection	Situación / Situation	Operativa en / Operational in	Observaciones / Notes
25	SOCA – SVCA	Pre operativa / Pre-operational		IOT y POT concluidos / IOT and POT concluded
26	SPIM – SVCA	Operativa / Operational	01/12/2017	
27	SVCA – SYCJ	En coordinación / In coordination		Estimase para julio 2019 / Estimated by July 2019
28	SAEZ – FAOR			
29	SAEZ – SITA	Pre operativa / Pre-operational		IOT y POT concluidos / IOT and POT concluded
30	SAEZ – SVCA			Extra-plan / extra plan
31	SBBR – GOOO	En coordinación / In coordination		
32	SBBR – KATL	Pre operativa / Pre-operational		IOT y POT concluidos / IOT and POT concluded
33	SBBR – LEEE	Operativa / Operational	11/10/2018	
34	SBBR – SITA	Operativa / Operational	16/08/2018	
35	SKBO – MPPC	En coordinación / In coordination		
36	SPIM – KATL	En coordinación / In coordination		
37	SVCA – KATL	En coordinación / In coordination		
38	SVCA – LEEE			Coordinaciones no iniciadas / Coordination not initiated
39	SVCA – TNCC	En coordinación / In coordination		
40	SVCA – TTPP	En coordinación / In coordination		

AMHS Interconnections / Interconexiones AMHS (13 June 2019 / 13 junio 2019)





International
Civil Aviation
Organization

Organisation
de l'aviation civile
internationale

Organización
de Aviación Civil
Internacional

Международная
организация
гражданской
авиации

منظمة الطيران
المدني الدولي

国际民用
航空组织

APPENDIX B

Re.: LT 12-SA136

Lima, 12 April 2019

To: Mr. Frédéric Guignier, Regional Director of Civil Aviation Authority (DSAC)
for French Antilles and French Guiana
Mr. Jerome Journet, Regional Director, West Indies and French Guiana
Lt. Col. Egbert Field, Guyana Civil Aviation Authority
Eng. Patrick Pengel MBA, Ministry of Public Works, Transport and Communications, Suriname

Subject: **Migration of AFTN users to the AMHS environment**

Action

Required: Complete and send the attached form **before 15 May 2019**

Dear Sir,

I have the honor to address you in reference to the aforementioned subject, to request your support in the effective implementation of the message service, known as AMHS (ATS Message Handling System).

The AMHS replaces the limited Messaging Service provided by the former Aeronautical Fixed Telecommunications Network (AFTN), which basically switched text messages with low automation possibilities. AMHS uses a standard electronic mail protocol, allowing the Messaging Service to evolve for the exchange of aeronautical information in more modern and efficient formats.

This migration is necessary and urgent in order to prepare the SAM Region with the expected growth in air transport in the coming years, ensure the interoperability of air navigation services and maintain and improve levels of safety.

In **Attachment A** you will find the background of this migration, as well as some technical details. In this regard, I request that the form of **Attachment B** be completed and sent **before May 15, 2019**, with the information referring to the AFTN users that still exist in the respective States and the plans for the definitive migration to the AMHS environment.

Should you have any questions or queries on the matter, please contact Mr. Francisco Almeida da Silva (Officer CNS SAM), via email: falmeida@icao.int and/or buy telephone +51 1 611-8686.

Please accept the assurances of my highest consideration.



Fabio Faizi Rahnemay Rabbani
Regional Director
ICAO South American Office
Lima

- cc: Mr. Claude Miquel, Deputy Director, Antilles-Guyane, French Antilles
Mr. Frédéric Danloux, Head of French Guiana Air Control Centre Cayenne-Félix Eboué Airport, Head of the Aircraft Search and Rescue RCC
Mr. Jean-Jacques Deschamps, Directeur Adjoint, ANSP Martinique, French Antilles-Guyane
Dr. Joyce Blokland-Wijnstein, Permanent Secretary, Directorate of Transport and Communication, Suriname
Mr. Faizel Baarn, Director of Civil Aviation Department, Suriname
Mr. Anjulio R. Wolf, Director, CASAS, Suriname
Mr. Marcus Doller, Air Safety Support Intl. (ASSI), United Kingdom
Mr. Bruce D’Ancey, Policy Specialist, Flight Ops, Air Safety Support International (ASSI), United Kingdom

Enclosure:

Attachment A: Background of AMHS

Attachment B: Form to complete and send to the SAM Office before 15 May 2019

APPENDIX A

Background of the AFTN Migration to AMHS

In September 1992, the Tenth Air Navigation Conference approved the concept developed by the FANS Committees (Future Air Navigation System) for the future air navigation system. The FANS Concept, which became known as the CNS/ATM systems, involves a set of complex and interrelated technologies, employing considerably satellites and autonomous data communication networks.

In the first package of CNS/ATM applications, 4 air-ground applications (ADS, ATIS, CM and CPDLC), and 2 terrestrial applications (AIDC and AMHS), were specified. The AMHS (ATS Message Handling System) was considered as the application with the fastest implementation because there were already products on the market since 1984, based on Recommendation X.400 of the International Telecommunication Union (ITU).

The AMHS enables the Aeronautical Message Service to evolve from the mere processing of texts, to the exchange of information in various forms (text, image, videos, audio, binary files, etc.), providing greater possibilities for the automation of air navigation services, in accordance with the provisions of the Global Air Navigation Plan and of the ICAO Regional Plans.

In view of the fact that it is impossible to change all AFTN users at once, the AMHS systems implemented would use a Gateway to enable communication between users of the AMHS environment with the remaining users of the AFTN environment. The intention is to use these devices until the migration of all AFTN users for the AMHS environment is complete.

With the adoption of new formats for meteorological messages, flight plans and future information of the SWIM concept, it is urgent that the States finalize their migration plans of the AFTN users, as soon as possible, because the new formats of aeronautical messages will be supported by the Gateways and terminals of AFTN users.

It is important to highlight that remnant AFTN users can be of two types: human users and users housed in automated systems. The human user can be easily migrated if he has an appropriate data communication network infrastructure, replacing his AFTN terminal with an AMHS User Agent, which is constituted by a computer with an application to transmit/receive AMHS messages.

The users of automated systems (AIM or MET Database, Flight Plan Processors, etc.) need adaptation in the modules that interface with the Messaging Service to use the protocols recommended for the AMHS. These users require a more detailed planning because it involves the hiring of companies to implement the changes, or the purchase of a new automated system.

