ICAO CAPACITY & EFFICIENCY

Session 3

TECHNICAL AND OPERATIONAL GUIDANCE ON ADVANCED SURVEILLANCE TECHNIQUES AND ON AIDC AS AN AUTOMATION APPLICATION

Regional CAR/SAM AIDC implementation and operation - ICD Selection

CAR/SAM Seminar/workshop on implementation of advance surveillance and automated systems

(Panama City, Panama, 22 to 25 September 2015)

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Agenda

- Considerations for AIDC Implementation
- CAR and SAM Regional target on AIDC Implementation
- AIDC implementation in the NAM/ CAR Regions
- AIDC Implementation in SAM Region
- PAN AIDC and the ICD comparison

Considerations for AIDC Implementation

NEED:

increasing traffic demands between FIRs prompt the need to improve efficiency, safety and accuracy for the ATC providers

harmonized process and defining protocols for exchange of data between multiple states/territories/ International Organizations within and across regions

AIDC and other Automation data exchange

Benefits

- ✓ significantly reduces the need for verbal coordination between Air Traffic Service Units (ATSUs).
- ✓ Reduced workload for controllers;
- ✓ Reduction of readback/hearback errors during coordination
- ✓ Reduced "controller to controller" coordination errors; and language barrier issues
- ✓ Mitigate LHD avoiding mid air collision
- ✓ Increased support for performance based navigation initiatives and emerging technologies with automation

Considerations for AIDC Implementation

- The implementation of AIDC is considered in the implementation strategy for the integration of automated systems of the CAR / SAM regions
- GREPECAS Conclusion 12/31 (Regional Strategy for the integration of ATM automated systems) agreed that States / Territories and International Organizations use the regional strategy for the integration of automation systems for the preparation of an action plan for integration of ATM automated systems
- GREPECAS Conclusion 14/43 (Agreements for interface of automated systems) urges States / Territories and International Organizations to use the guidance material Interface Control Document (ICD) for data communications between ATS units in the CAR / SAM Regions
- GREPECAS Conclusion 14/44 approves the Table of ATS Operational requirements for automated systems which have to be considered in the action plan for the integration of ATM automated systems
- GREPECAS Conclusion 15/36 (Measures To Reduce Operational Errors in the ATC Coordination Loop Between Adjacent ACCs) urges States, Territories and International Organizations to gradually implement the interface for AIDC.

Considerations for AIDC Implementation

- Adequate training is a key element for the implementation, focused specifically for ATS personnel as well as people in charge of the management of the AIDC application.
- When implementing the interconnection of the AIDC application between two States/ ATS Units; a memorandum of understanding (MoU) should be established where appropriate technical, operational and administrative aspects for interconnection are defined.
- The implementation of AIDC should be done in a gradual way from a voice and automated environment to achieve complete transfer of automated systems.
- The implementation of AIDC should be implemented in an ATN IPS environment.
- GREPECAS Conclusion 17/9 (Activities for Consolidated Interface Control Document (ICD) for AIDC Implementation in the CAR / SAM Regions) urged the GREPECAS D Project to evaluate existing ICDs and coordinate the activities necessary for Interface Control Document (ICD) established for the implementation of AIDC in the CAR / SAM Regions.

CAR/SAM ICD

The interface Control Document (ICD) is a living document for the exchange of data between ATS (ATSU) employing units of AIDC messages and other identified as needed by the ATSUs.

Table 2. Core Message Set

Category	Msg.	Message Name	Description	Pri-ority	Source
Coordination of pre-departure flights	FPL	Filed Flight Plan	Flight plan as stored by the sending ATS unit at the time of transmission. Used only for proposed flights.	FF	ICAO Doc 4444
	CHG	Modification message for **Proposed** Flight Plan	Changes previously sent flight data (before estimate data has been sent).	FF	
	CNL	Cancellation	Cancels an FPL	FF	
Coordination of active flights	CPL	Current Flight Plan	Flight plan as stored by the sending ATS unit at the time of transmission, including boundary estimate data. Used only for active flights.	FF	ICAO Doc 4444
	EST	Estimate	Identifies expected flight position, time and altitude at boundary.	FF	
	CNL	Cancellation	Cancels a CPL.	FF	
	MOD	Modification message for **Active** Flight Plan	Changes previously sent flight data (after estimate data has been sent).	FF	New message, format per CHG.

CAR/SAM ICD

General Information	MIS	Miscellaneous	Free-format text message with addressing options.	FF	NAT ICD
Interface Management	IRQ	Initialization Request	Initiates activation of the interface.	FF	Based on existing Canadian protocols.
	IRS	Initialization Response	Response to an IRQ.	FF	
	TRQ	Termination Request	Initiates termination of the interface.	FF	
	TRS	Termination Response	Response to a TRQ.	FF	
Radar Handover	RTI	Radar Transfer Initiate	Initiates a radar handover.	FF	New messages based on existing U.S. protocols and ICAO Doc 4444 format
	RTU	Radar Track Update	Provides periodic position updates for a track in handover status.	FF	
	RLA	Radar Logical Acknowledgement	Computer acceptance of an RTI message.	FF	
	RTA	Radar Transfer Accept	Accepts or retracts a handover.	FF	
Acknowledgements (included in each of the above services)	LAM	Logical Acknowledgement	Computer acceptance of a message.	FF	ICAO Doc 4444
	LRM	Logical Rejection	Computer rejection of an invalid message.	FF	NAT ICD

CAR/SAM ICD

Part III: Communications and supporting mechanisms

Use of AFTN Network	• IA-5 message format, using optional information field in header (Annex 10, volume II, 4.4.15.2.2.6) • 69 characters long
WAN use	• Frame Relay Networks • Regional networks
Use of dedicated lines	• In accordance to security and capacity requirements
ATN	

The Aeronautical ATS units that decide to implement the data exchange should made them through Letters of Agreements, defining in the same letter the AIDC messages to be used from the ICD message set

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CAR and SAM Regional target on AIDC Implementation

INTERNATIONAL CIVIL AVIATION ORGANIZATION
South American Regional Office

BOGOTA DECLARATION

The thirteenth meeting of Civil Aviation Authorities of the SAM Region held in Bogota, Colombia, from 4 to 6 December 2013, convened by the ICAO South American Regional Office, and counting with the participation of high level officials representing 13 States and 8 international organizations and industry:

Considering that, in accordance with Article 37 of the International Civil Aviation Convention, each contracting State undertakes to collaborate in securing the highest practicable degree of uniformity in regulations, standards, procedures and organization in relation to aircraft, personnel, airways and auxiliary services in all matters in which such uniformity will facilitate and improve air navigation;

Noting the objectives to be achieved through the Global Air Navigation and Safety Plans, recently approved by the Thirty-eighth Session of the ICAO Assembly;

Taking into account the paramount role civil aviation performs in the socio-economical, exchange and commerce development for regional integration;

Aware that the constant air transport growth in the region and the great worldwide events to be developed in the next years require additional efforts to improve even more the aviation safety, efficiency and security indicators;

Aware that the air transport growth poses additional challenges for the infrastructure of both airports and air navigation;

Aware that the management of regional processes towards the implementation of air navigation, safety and security operational improvements require the establishment of clear indicators and goals;

Recognizing that the South American Region has successfully implemented regional technical cooperation mechanisms adopting a joint approach in the solution of problems of common interest;

Aware that the harmonization of regional standards and procedures will facilitate a collaborative environment among States, guaranteeing an increase in the levels of air operations safety in the region and the achievement of joint goals;

Aware that regional air navigation operational improvements are more productive, and that delays from one State can negatively affect the remainder States;

Recognizing that legislation on the protection of sources of information is necessary for a better regional State Safety Programme (SSP) and Safety Management Implementation (SMS) implementation;

Aware that the safety objectives achieved to date require specific actions for their sustainment;

Recognizing the importance of developing air safety intelligence using reactive, proactive and predictive information to accompany the taking of decisions, mitigation of safety risks and continuous improvement;

BOGOTA DECLARATION

Civil Aviation Authorities of South America in its Thirteenth Meeting held in Bogota, Colombia, from 4 to 6 December 2013 adopted the Declaration of Bogotá through Conclusion RAAC/13-8 *Implementation Of Priorities And Air Navigation Safety*

Automated Systems Interconnection (Exchange of Data Communications between ATS Facilities (AIDC)): 100% implementation of Automated Systems Interconnection

By the end of 2015 an implementation goal of 15 interconnections has been defined: distribution of implementation year (2013-2015) : 1 for 2013, Nine in 2014 and five In 2015

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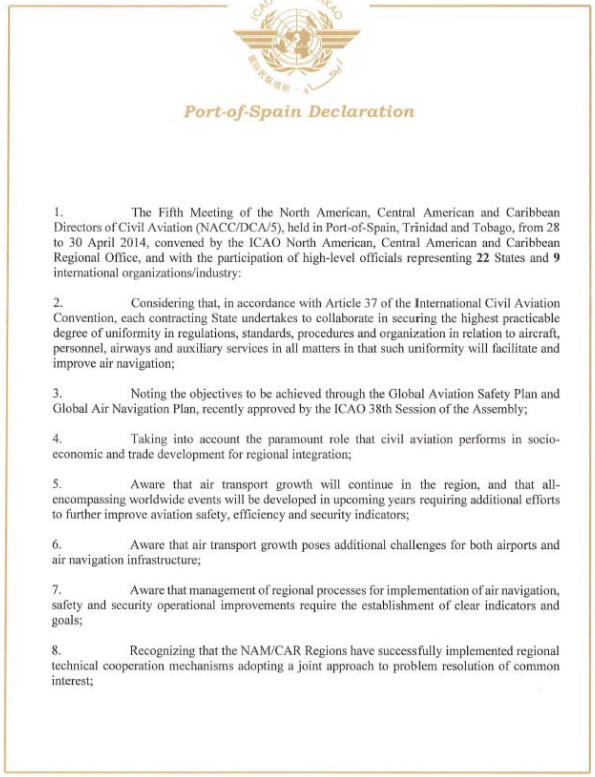
CAR and SAM Regional target on AIDC Implementation



Port-of-Spain Declaration

1. The Fifth Meeting of the North American, Central American and Caribbean Directors of Civil Aviation (NACC/DCA/5), held in Port-of-Spain, Trinidad and Tobago, from 28 to 30 April 2014, convened by the ICAO North American, Central American and Caribbean Regional Office, and with the participation of high-level officials representing **22** States and **9** international organizations/industry:

2. Considering that, in accordance with Article 37 of the International Civil Aviation Convention, each contracting State undertakes to collaborate in securing the highest practicable degree of uniformity in regulations, standards, procedures and organization in relation to aircraft, personnel, airways and auxiliary services in all matters in that such uniformity will facilitate and improve air navigation;

3. Noting the objectives to be achieved through the Global Aviation Safety Plan and Global Air Navigation Plan, recently approved by the ICAO 38th Session of the Assembly;

4. Taking into account the paramount role that civil aviation performs in socio-economic and trade development for regional integration;

5. Aware that air transport growth will continue in the region, and that all-encompassing worldwide events will be developed in upcoming years requiring additional efforts to further improve aviation safety, efficiency and security indicators;

6. Aware that air transport growth poses additional challenges for both airports and air navigation infrastructure;

7. Aware that management of regional processes for implementation of air navigation, safety and security operational improvements require the establishment of clear indicators and goals;

8. Recognizing that the NAM/CAR Regions have successfully implemented regional technical cooperation mechanisms adopting a joint approach to problem resolution of common interest;

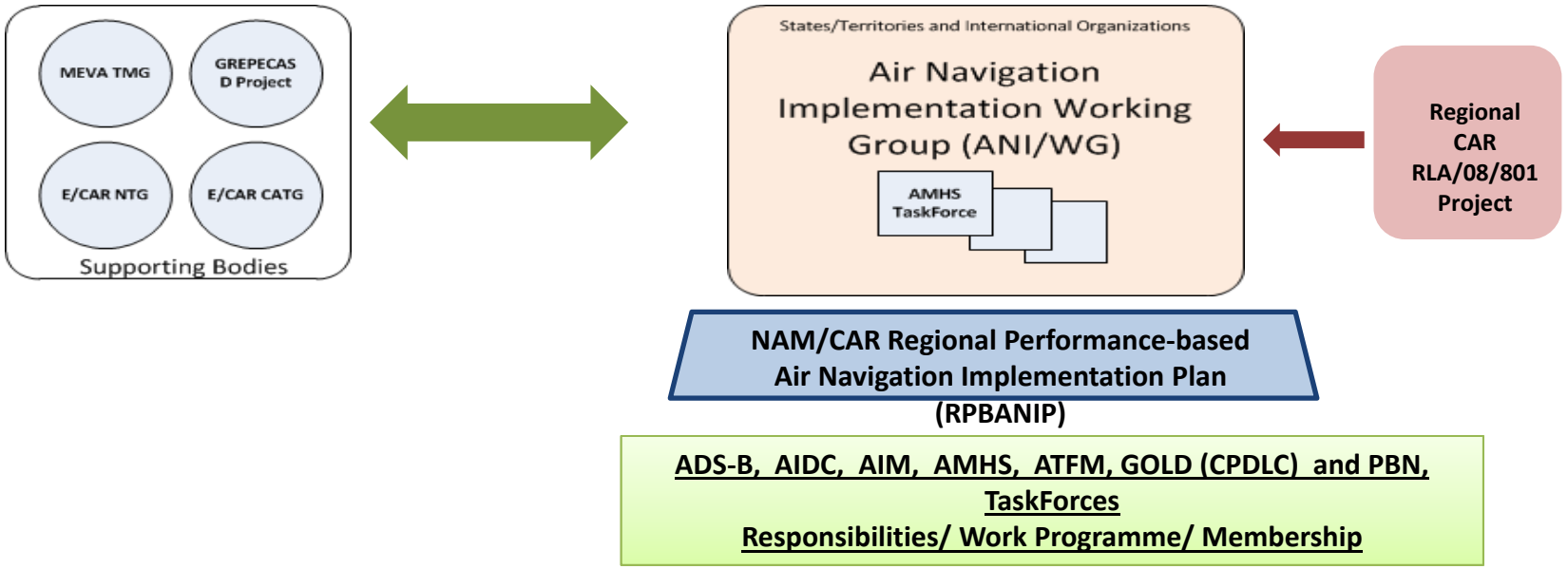
PORT OF SPAIN DECLARATION

Signed by the NAM/CAR Civil Aviation Authorities in its Fifth Meeting of the North America, Central America and Caribbean Directors of Civil Aviation (NACC/DCA/05) held in Port of Spain, Trinidad and Tobago from 28 to 30 April 2014

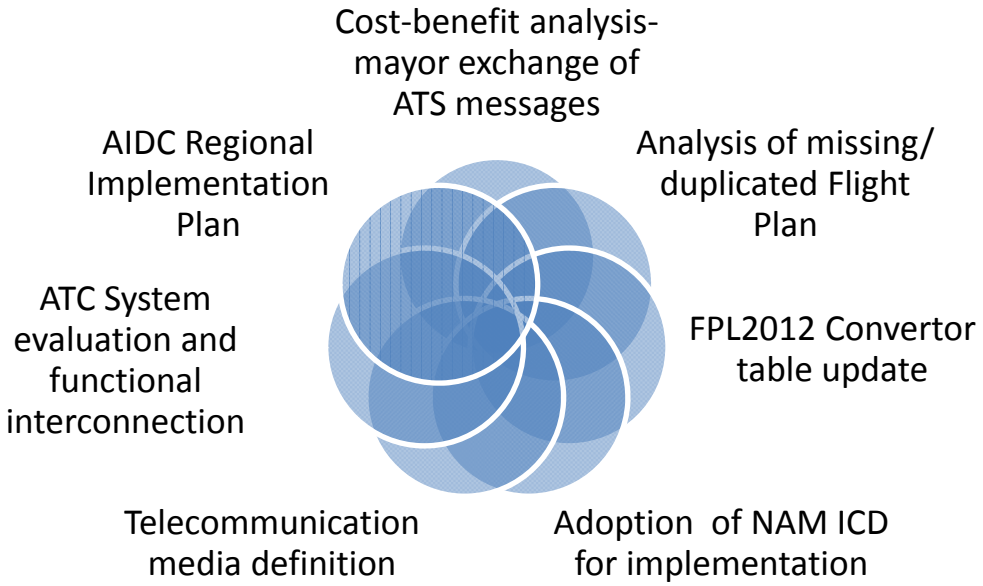
Ground-Ground Digital Coordination/ Transfer:

50% of FIRs within which all applicable ACCs to have implemented at least one interface to use AIDC/OLDI with neighboring ACCs by December 2016

NAM/CAR Implementation supporting and implementing Bodies

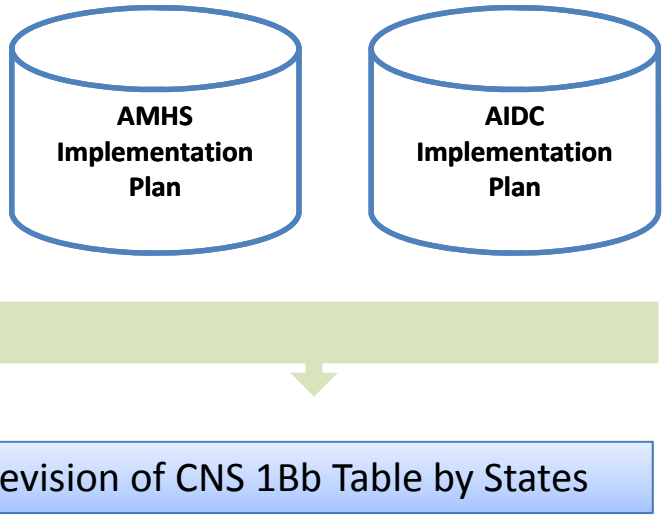


AIDC REGIONAL IMPLEMENTATION



AIDC REGIONAL IMPLEMENTATION
CAR/SAM ANP Table CNS 1Bb – ATN Ground- Ground Applications Plan

- Due to the implementation of the New Flight plan format, several States have speed up the implementation of their ATS Automation Systems
- With the recognition of the operation benefits achieved through the implementation of CPL-LAM functionalities, more States are requiring the AIDC implementation
- The modernization of regional telecommunication networks are facilitating the implementation of ATN applications



AIDC REGIONAL IMPLEMENTATION: FPL2012 Converter Status Table

FOLLOW-UP: 25 MARCH 2014

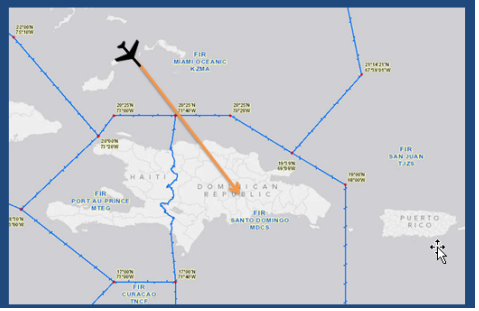
Date	Solution	
	AFTN Terminal –FPL	ATC Automated System - FDP
Anguilla	Implemented	Manual
Antigua and Barbuda	Implemented	Manual
Aruba	Implemented	Implemented
Bahamas	Implemented	Full upgrade
Barbados	Implemented	Implemented
Belize	Implemented	Full upgrade planned (converter is use)
Bermuda	Implemented	Manual
British Virgin Islands	Implemented	Manual
Canada	Implemented	Implemented
Cayman Islands	Implemented	Implemented
COCESNA	Implemented	Full upgrade planned (2014). Currently converter is use
Costa Rica	Implemented	Full upgrade planned (converter is use)
Cuba	Implemented	Implemented

AIDC REGIONAL IMPLEMENTATION: Regional Plan

State	1 FDP capability / Implementation date / manufacturer/model	2 Adjacent FIR	3 Testing and Implementation Date for Adjacent FIR	4 Point(s) of Contact	5 Bilateral Agreement or ICD	6 Circuit/Bandwidth used	7 Comments
Cuba	yes - Oracle Version 9 modified by LITA-CUBA	FIR Miami	Operational, December 15, 2011	Manuel Castillo Velasco, Operation Management Havana ACC (537)-649-7281, email: mcastillo@aeronav.ecasa.avianet.cu	NAM-ICD Version D	19200 BPS	Cuba has received many mistakes from the users in the FPL, in almost all fields. We have detected changes in the FPL forwarded by ACC´s or ANSP offices related to FPL´s presented by operators
		FIR Merida	Operational, March 9, 2012				
		FIR Kingston	TBD				
		FIR CENAMER	March/April 2015				
		FIR Haiti	TBD				
Dominican Republic	Yes TopSky-ATC, Thales ATM	KZMA/Miami ARTCC	Q4 2015	Julio Cesar Mejia A. Enc. ATM, jmejia@idac.gov.do, 809 274-4322. Ext. 2103 + Fernando Casso, fernando.casso@idac.gov.do	NAM-ICD Versión D	AMHS: 64 Kbps	
		Curacao	TBD		NAM-ICD Versión D	TBD	
Mexico	Yes- FDP=Topsky, Producer= THALES ATM, INFO= Four Control Centres, all Mexico covered	Central America (COCESNA/CENAMER)	may-15	Ing. Jose de Jesus Jimenez Director de Sistemas Digitales SENEAM/SCT/MÉXICO disda@sct.gob.mx 55 57 86 55 32	NAM-ICD Versión D	19200 bps	Mexico already counts with the implementation of CPL/LAM information exchange between: MZT ≤ ≥ LAX, MZT ≤ ≥ ABQ, MTY ≤ ≥ABQ, MTY ≤ ≥HOU, MID ≤ ≥ HOU, MID ≤ ≥ HAB

AIDC implementation in the NAM/ CAR Regions

Inbound Traffic from KZMA to MDCS



Inbound Traffic from TJZS to MDPC UNDER A150

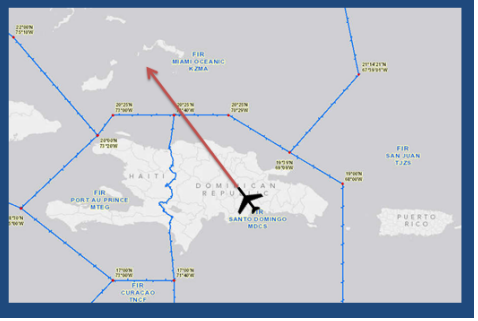
Evaluation of operational scenarios

Messages needed vs. total workload

Selection of ICD

In most NAM/CAR interoperability environments, radar is the operational norm and non-radar the exception where in traditional AIDC non-radar is more the norm and radar is the exception

Outbound Traffic from MDCS to KZMA



Over flight Traffic from TJZS to KZMA via MDCS

AIDC implementation in the NAM/ CAR Regions

NACC/WG/4 and ANI/WG/02 Meetings – Follow-up and monitor the implementation

- the AIDC Task Force, is the leading group for the implementation of AIDC
- Creation of a FPL monitoring group- to coordinate resolution of FPL errors

CONCLUSION
NACC/WG/4/9 ADOPTION OF NAM INTERFACE CONTROL DOCUMENT (ICD)

That the NAM ICD be adopted as the preferred ICD in the CAR region, not precluding the use of other ICDs under circumstances favourable to the latter.

Regarding the AIDC Implementation Performance Indicator, the AIDC-TF reported that the implementation of AIDC in the NAM/CAR Regions currently meets the target performance goal of 80% with a 81.40%

AIDC implementation in the NAM/ CAR Regions

AIDC IMPLEMENTATION CHECKLIST

- Duplicate/Erroneous Flight Plans EFFORT
- General Planning issues
- SOFTWARE/HARDWARE ADAPTATION
- TESTING – Three Phases Non-Operational Offline Non-Operational Operational
    - Non Operational Testing – Offline Configurations which need testing: Test Facility A to Test Facility B Test Facility A to Test Facility C
    - Non Operational Testing
    - OPERATIONAL/LIVE – TESTING
- Final Operational Implementation
- TRAINING
    - Initial Facility Tech Ops Familiarization
    - Develop Site Unique Ops Familiarization
    - Update of Training courses/plan
    - Complete training course refresher if necessary
- Initial Performance Monitoring

ACTIVITY	Status
• Duplicate/Erroneous Flight Plans EFFORT	
• General Planning issues	
• Construct Overview Briefing Strategy	
• Identify Operational Impacts/Changes	
• Definition of Internal Coordination Requirements	
• Identify facility (ies) Areas/Sectors Involved	
• Identify/assess known issues (ex. MEVA, etc.)	
• Construct Requirement Matrix (resources, staff, etc.)	
• Construct Fallback /Recovery Plan	
• Interfacing facility impacts	
• Risk assessment	
• Identify System Metrics (Performance)- track progress	
• Define project milestones (scope- gradual implementation)	
• Identify key personnel for Site Implementation. ATC, Automation, Data Spec, Labor Relations, Service POCs	
• Identify Existing /Required Telecommunications	
• Identify limitations/impacts of other projects or Implementations	
• Coordinate project /facility / interfacility POC list/contact numbers	
• Review/coordinate site unique Implementation documents	
• Review LOAs existing/changes Advantages of Automation Appendix	
• Develop a procedure to capture/document problems or lessons learned Non-Ops/Automation Ops	
• PreCoordinate Test Support Needed: Site Automation - Comm POCs	
• SOFTWARE/HARDWARE ADAPTATION	
• Airspace/Routes/Fixes/ coordination points/ Special Use	
• message class/ type is used/times/errors/triggers, etc.	
• Systems Field differences between sites - What is an error to each type message - Common errors from lessons learned, how does system react to those issues	
• Identify any System Configurations and/ or Settings needed to enable/disable processing	
• Dedicated Test Bed	
• TESTING – Three Phases Non-Operational Offline Non-Operational Operational	
• Non Operational Testing – Offline Configurations which need testing: Test Facility A to Test Facility B Test Facility A to Test Facility C	
• Define Non-Ops Offline Testing Capability Testing with FAA Technical Center - Can test configuration be isolated from operational system? - Can telecommunications test line and operational line be shared without impact - Use of Test AFTN addresses	
• Test Prep Adaptation parameters: Time /distance/display/etc Prepare Test procedures Construct test scenarios that duplicate actual traffic Determine/use system ability to capture test results Identify Test Coordinator & personnel (Cadre if needed)	

AIDC Implementation in SAM Region

In the SAM Region with the support of the RLA /06/901 project, a guide for AIDC implementation of interconnection through the adjacent automated centers (May 2013) was developed

Minimum AIDC message set adopted in the SAM region

CATEGORÍA	MENSAJE	NOMBRE	DESCRIPCIÓN
Coordinación de pre-partida vuelos	FPL	Plan de vuelo presentado	Plan de vuelo, tal como ha sido presentado a la dependencia ATS.
	ABI	Notificación	Los mensajes de notificación se transmitirán por adelantado a las dependencias ATS.
Coordinación de vuelos activos	CPL	Plan de Vuelo actualizado	Plan de vuelo que comprende los cambios que resultan de incorporar autorizaciones.
	EST	Estimación	Hora prevista de paso por el punto de transferencia o punto limítrofe.
	CDN	Negociación	Propuesta de enmienda a las condiciones de coordinación.
	ACP	Aceptación	Aceptación de la coordinación propuesta o enmienda.
	REJ	Rechazo	Coordinación rechazada
Trasferencia de control	TOC	Trasferencia	El controlador de la dependencia de transferencia ha dado instrucciones al vuelo de establecer una comunicación con el controlador de la dependencia de aceptación.
	AOC	Aceptación de transferencia	El vuelo ha establecido comunicación con el controlador aceptante
Lógicos	LAM	Reconocimiento lógico	Aceptación de la aplicación.
	LRM	Rechazo lógico	Rechazo de la aplicación.

AIDC Implementation in SAM Region

- Considering the high incidence of coordination errors between ACC SAM ACCs on the Pacific coast and taking into account the implementation of AIDC message exchange between these centers would mitigate coordination errors, the implementation of AIDC was considered a priority among ACC Santiago – ACC Lima, ACC LIMA - ACC Guayaquil , ACC Guayaquil -ACC Bogota , ACC Bogota - ACC Lima and ACC Bogota - ACC Panama.

- With the support of the Regional Technical Cooperation Project RLA/06/901, the following activities were made and planned for near term:

  - ✓ Implementation of a training plan with an AIDC practical course in Chile, Colombia, Ecuador, Panama and Peru being trained a totality of 150 controllers

  - ✓ AIDC between ACC de Lima - ACC de Guayaquil in a operational phase since 3 August 2015

  - ✓ AIDC between ACC de Lima ACC de Bogotá and ACC Bogotá ACC de Guayaquil in a pre operational phase since May 2015

  - ✓ Positive trials between ACC de Bogotá - ACC de Panamá and ACC Iquique ACC - Lima (June – August 2015)

  - ✓ AIDC between ACC Lima - ACC Bogotá expected to be in operation phase October 2015 and ACC Lima - ACC Iquique (Chile) - March 2016)

PAN AIDC and the ICD comparison

		Mensajes de Notificacion						
		Unidad anterior (nuestro centro para vuelos salientes de la FIR)			APAC	NAN	SAM	
Fase de Notificacion	Automatico	ABI	Mensaje de avance de informacion en la frontera	Notificacion	X		FPL	Antes del COP el sector anterior envia automaticamente un mensje ABI para notificar la coordinacion que se acerca. ABI notifica a la unidad siguiente. Con cada modificacion de la ruta el sector anterior debe enviar una revision de ABI al sector siguiente. Cambia el estado del plan de vuelo a Notificado. Inicia el calculo de la trayecroria.
		LAM	Mensajes logicos de acuse de recibo		X	X	X	Al recibir el LAM en campus status pasa a NTF (ABI recibido) para el vuelo correspondiente. Si no se recibe el LAM el campo status pasa a NTF LTO (ABI LAM expirado) para el vuelo correspondiente
	Manual	PAC	Mensaje de activacion preliminar	Notificacion	X		CHG	Para iniciar una notificacion y coordinacion antes de la salida del mismo con el sector siguiente, Cuando el tiempo de vuelo (desde la salida al COP) sea menor que el requerido para cumplir con los parametros de tiempo de la transmision del mensaje de activacion. Cambia el estado de un plan de vuelo a Activo. Iniciar el calculo de la trayectoria.
		LAM	Mensajes logicos de acuse de recibo		X			Al recibir el LAM en campus status pasa a COORG (PAC recibido) para el vuelo correspondiente. Si no se recibe el LAM el campo status pasa a COORG LTO (PAC LAM expirado) para el vuelo correspondiente
	Manual	MAC	Mensaje de derogacion de la coordinacion	Notificacion	X		CNL	Cancelacion de la notificacion. Cambia el estado del plan de vuelo a Inicial o Notificado dependiendo del estado del MAC. No hace mas actualizaciones en los datos del SFPL.
		Unidad siguiente (nuestro centro para vuelos entrantes en el FIR)						
		ACP	Mensajes de aceptacion	Negociacion	X			Si los mensajes ABI o PAC recibidos son correctos, el sector siguiente devuelve un ACP a la unidad anterior
		LRM	Mensaje de rechazo logico	Negociacion	X		X	Si un ABI o PAC contiene errores, el sector siguiente envia un LRM a la unidad anterior Si un MAC contiene errores, el sector siguiente envia un LRM a la unidad anterior

PAN AIDC and the ICD comparison

		Mensajes de Coordinacion						
		Unidad anterior (nuestro centro para vuelos salientes de la FIR)			APAC	NAN	SAM	
Fase de Coordinacion	Automatico	EST	Mensaje de estimados	Coordinacion	X	X	X	Un tiempo antes del COP el sector anterior envia automaticamente un mensje EST al siguiente sector para iniciar la coordinacion. Actualiza los ETOs del plan de vuelo. Cambia el estado del plan de vuelo a Activo.
		LAM	Mensajes logicos de acuse de recibo		X			Al recibir el LAM en campus status pasa a COORG (EST recibido) para el vuelo correspondiente. Si no se recibe el LAM el campo status pasa a COORG LTO (EST LAM expirado) para el vuelo correspondiente
	Automatico	CPL	Mensaje de plan de vuelo actual	Coordinacion	X	X	X	Un tiempo antes del COP, el sector anterior envia automaticamente un mensaje CPL al sector siguiente para iniciar coordinacion. Si existe en la bd un SFPL que se corresponda, cambia su estado a Activo. Sino existe crea un SFPL.
		LAM	Mensajes logicos de acuse de recibo		X			Al recibir el LAM en campus status pasa a NEGG (CPL recibido) para el vuelo correspondiente. Si no se recibe el LAM el campo status pasa a NEGG LTO (CPL LAM expirado) para el vuelo correspondiente
	Manual	CDN	Mensaje de coordinacion	Coordinacion	X			Al introducir un comando el controlador, el sector anterior envia un mensaje CDN para modificar los datos de Coordinacion con el sector siguiente.
		LAM	Mensajes logicos de acuse de recibo		X			Al recibir el LAM en campus status pasa a RENEGG (CDN recibido) para el vuelo correspondiente. Si no se recibe el LAM el campo status pasa a RENEG LTO (CDN LAM expirado) para el vuelo correspondiente
	Manual	MAC	Mensaje de derogacion de la coordinacion	Notificacion	X	CNL		Cancelacion de la notificacion. Cambia el estado del plan de vuelo a Inicial o Notificado dependiendo del estado del MAC. No hace mas actualizaciones en los datos del SFPL.
		Unidad siguiente (nuestro centro para vuelos entrantes en el FIR)						
	Automatico	ACP	Mensajes de aceptacion	Coordinacion	X		X	Si los mensajes EST, CPL o CDN recibidos son correctos, el sector siguiente devuelve un ACP a la unidad anterior
		LRM	Mensaje de rechazo logico	Coordinacion	X		X	Si un EST contiene errores, el sector siguiente envia un LRM a la unidad anterior Si un MAC contiene errores, el sector siguiente envia un LRM a la unidad anterior

PAN AIDC and the ICD comparison

		Mensajes de Transferencia						
		Unidad anterior (nuestro centro para vuelos salientes de la FIR)			APAC	NAN	SAM	
Fase de transferencia	Manual	TOC	Mensaje de transferencia de control	Transferencia	X	RTI		Un tiempo antes del COP el sector anterior envia automaticamente un mensje EST al siguiente sector para iniciar la coordinacion. Actualiza los ETOs del plan de vuelo. Cambia el estado del plan de vuelo a Activo.
		LAM	Mensajes logicos de acuse de recibo		X		X	Al recibir el LAM en campus status pasa a COORG (EST recibido) para el vuelo correspondiente. Si no se recibe el LAM el campo status pasa a COORG LTO (EST LAM expirado) para el vuelo correspondiente
	Manual	CDN	Mensaje de coordinacion	Coordinacion	X			Al introducir un comando el controlador, el sector anterior envia un mensaje CDN para modificar los datos de Coordinacion con el sector siguiente.
		LAM	Mensajes logicos de acuse de recibo		X		X	Al recibir el LAM en campus status pasa a RENEGG (CDN recibido) para el vuelo correspondiente. Si no se recibe el LAM el campo status pasa a RENEG LTO (CDN LAM expirado) para el vuelo correspondiente
		Unidad siguiente (nuestro centro para vuelos entrantes en el FIR)						
	Automatico	AOC	Mensaje de asuncion de control	Transferencia	X	RTA		Si los mensajes CDN recibidos son correctos, el sector siguiente devuelve un ACP a la unidad anterior
		REJ	Mensaje de rechazo	Transferencia	X		X	Si un contiene errores, el sector siguiente envia un REJ

		Mensajes con informacion general						
		Unidad anterior (nuestro centro para vuelos salientes de la FIR)			APAC	NAN	SAM	
Mensajes con informacion general	Manual	EMG	Mensaje de emergencia		X			
					X			
	Manual	MIS	Mensaje miscelaneo		X			
					X		X	
		Unidad siguiente (nuestro centro para vuelos entrantes en el FIR)						

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THANK YOU