SAM/IG/1
WP/19
10/04/08

International Civil Aviation Organization
South American Regional Office

FIRST WORKSHOP/MEETING OF THE SAM IMPLEMENTATION GROUP (SAM IG/1)
REGIONAL PROJECT RLA/06/901

Lima, Peru, 21 to 25 April 2008

Agenda Item 4: Operational implementation of new ATM automated systems and integration of the existing systems

REGIONAL INTERCONNECTION PLAN FOR AUTOMATION SYSTEM

(Presented by secretariat)

Summary

This working paper present the results of the automation activities performed in the RLA/98/003. The current regional situation of the implementation of ATC automated systems and a preliminary regional plan outlining possible solutions for the interconnection of ATC automated system is presented

References:

- Ninth Coordination Meeting of the RLA/98/003 Project Report (Lima – Peru, 4 December 2007)
- CAR/SAM automated ACC interconnection plan (RLA/98/003 Project)
- Preliminary CAR/SAM System Interface Control Document (SICD) (RLA/98/003 Project)

1 Introduction

1.1 Air Traffic Control Centres of the CAR/SAM Regions have been faced with difficulties on proper air traffic coordination procedures that have been appointed as a major contributing factor to air traffic incidents, which could be significantly reduced through the Interconnection of Automated Air Traffic Control Systems to implement automatic transfer of data so as to minimize the execution of manual procedures to complete the required ATC coordinations.

1.2 The interconnection of automated systems of Air Traffic Control Facilities of the CAR/SAM regions has the objective of establishing the automated transmission of flight plan data and surveillance data of the flights that are transitioning form one FIR to the adjacent FIR, as a way of improving the air traffic control coordination process and transfer of control of flights between affected Air Traffic Control Centres.

1.3 In order to accomplish the regional interconnection of automated ATC systems facilities a series of activities were established under the RLA/98/003 Project. The activities were made by a group of experts in automation system under the coordination of the ICAO Lima Regional Office. The following activities were made:

- Elaboration of a questionnaire on automation system installed in the ATS dependencies and their interfaces.
- Performed interconnection tests between the automated systems of Manaos-ACC (FIR Amazonica), in Brazil and Maiquetía-ACC (FIR Maiquetía) in Venezuela.
- Missions to States, for Data Gathering: Activity performed during 2007, by a team of experts provided by DECEA and ICAO/LIMA, with the purpose of assessing the current situation of the automated air traffic control systems installed in the Area Control Centres of CAR/SAM States. On site technical visits were accomplished in Peru, Ecuador, Venezuela, Colombia, Panama, COCESNA, Chile, Uruguay, Argentina and Brazil.
- Elaboration of the Interface Control Document (SICD): based on the data collected during the visits, the team prepared a document of interfaces that contains all the related data and a description of the existing interfaces of the many systems available at the ACCs of CAR/SAM States, therefore, providing an overview of the current situation and providing the subsidies for adopting the necessary measures to interconnect those systems.
- Elaboration of an Interconnection Plan based on the information consolidated in the SICD and taking into consideration the peculiarities of each State’s ACCs.

2 Regional analysis of implemented automated ATC systems

Current situation concerning radar systems and radar data sharing

2.1 In the CAR/SAM States many Air Navigation Service Providers (ANSPs) own a national network of fixed radars and get a synthesis of the information received from those sensors which, complemented by flight plan information, constitutes basic data used for air traffic control. In addition to these data, other information from adjacent ATC Units may be fed into the automated systems, in order to provide a wider picture of the air traffic under their responsibility.

2.2 The transfer of responsibility of control of flights between adjacent Centres is initiated via transmission of data from the flight plans through AFTN messages and is finally accomplished through oral bilateral communications of the air traffic controllers on duty. This manual, non-automated process, has been identified as a root-cause of several operational mishaps.

2.3 The missions to States of the ICAO Experts for data gathering purpose on the current ATC systems installed throughout the region, resulted in the elaboration of a document of external interfaces (SICD), which presents the description of the internal characteristics of ATC systems installed in the CAR/SAM regions.

2.4 The SICD provides an easy overview of different systems installed at ATC Facilities in the Region, developed and installed by different suppliers, with each system having it's own architecture and reflecting a certain technological development stage. Therefore, some systems already are prepared to allow for the use of advanced technologies, such as ADS/CDPLC, whilst others still rely upon the use of basic features.

2.5 The visits to States confirmed that the system most widely installed in the region is AIRCON 2000, provided by INDRA. A total of five Area Control Centres already rely on this system, however, there are different versions of the mentioned system, with some different functionalities.

2.6 Radar coverage in the different FIR is quite diverse, the case being that some of them have full coverage at upper airspace levels, whilst in others only a very limited radar coverage is provided.

2.7 Another aspect that has been observed is the great difference on how dependent certain States are of the supplier of the solution. Some ANSPs depend totally on the supplier to implement even very simple changes to the system, whilst others succeeded in having a technical team highly capable and up-to-date, that is capable of performing configuration changes as needed and specify new functionalities to optimize the provision of air navigations services.

2.8 Throughout the region, only one effective case of radar data sharing has been implemented, between Argentina and Uruguay, with some others being under consideration and at different stages of the corresponding bilateral agreements. However, there are no implementations or concrete plans that deal with the coordination of cross border flights in an automated way between air traffic control centres.

Current situation of the OLDI/AIDC systems for flight plan data exchange

2.9 Although the existing systems of most ATC Centres present the basic feature that would allow coordinating flight plans through the OLDI protocol, this function is not in use yet, mainly due difficulties shown by the local technicians to configure the system accordingly, as well as the apparent differences of implementations of the protocol by the systems providers. In one case, a tentative establishment of flight plan coordination between two adjacent ACCs using OLDI went unsuccessful, probably due the differences of implementation of the protocol by competing providers.

2.10 Some ATC Systems make use of coordination messages (CDN, LAM, ACP) as specified in ICAO Document 4444-PANS/ATM for flight plan coordination between adjacent ACCs, this being the specific case of Brazil (where plans of eventually using OLDI for the same purpose and upgrading to AIDC are in place).

2.11 Also, Venezuela too has the capacity to coordinate through ICAO Document 4444-PANS/ATM Messages, and, although it is not been used operationally, this feature has been subject to feasibility demonstration during the interconnection tests conducted between Amazon-FIR and Maiquetía-FIR, that were realized in the scope of RLA/98/003.

2.12 Overall, only Chile makes operational use of an OLDI protocol implementation, in order to accomplish automated air traffic coordination between its ACC and national Approach Control Centres.

2.13 The only AIDC system in the Region was purchased by Argentina.

Levels of regional interconnection between automation system

2.14 Taking in consideration the visits at the most automated ATC systems in the SAM Region and COCESNA, and the data collected, different levels of interconnection situations were noted.

2.15 The levels of interconnection are deemed to serve as planning factors for the definition of the implementation strategies, since they characterize and categorize the current stage and readiness of each ATC Centre for such interconnection.

2.16 The current regional level of interconnection for flight data and radar data interconnection is presented in **Appendix A** of this working paper. The levels of interconnection are classified from a lower level that represents a non automatic functionality to an upper level that represents automation functionality. Taking in consideration the current level of automation interconnection presented in the Appendix A for each of the ACCs of the SAM Regions and COCESNA an allocation interconnection level implementation table was elaborate. The table indicates the solutions for the interconnection level of implementation that might be used for each ACC and their Adjacent ACC in a specific State. The Table is showed in the **Appendix B** of this working paper.

Preliminary implementation Plan for the Regional Interconnection of the ATC automated systems

2,17 To approach the level of interconnection implementation different solutions were determined a bilateral Interconnection (Centre to Centre), a Multilateral and an interring implementation solution for sharing data radar information.

2.18 The bilateral interconnection is done when a common protocol is established to exchange the data of flight plans and radars between two neighbor States, with the necessary adjustments to integrate those data in each system. This way has the advantage of establishing short period actions and using the existing technologies common to each neighbor State. With this, it is possible to use the existing technical knowledge and resources saving money and means.

2.19 The multilateral interconnection it should be done by considering a Radar Data Network that specifically facilitate extensive surveillance data sharing. In this network, all data (radar and future ADS-B) from different sites/locations in several States are received at the specific interface of each sensor, converted to standard ASTERIX format and shared according to a geographical filtration based on each State interests. The basic equipment is the RMCDE (Radar Message Conversion and Distribution Equipment), which normally is first applied to give support to national programs of modernization. Later on, the equipment also provides for a given State to connect with adjacent States´ Facilities to exchange surveillance data of common interest and, at advanced stages, the same physical equipment allows for integration to a radar data net that is

flexible and of a wide-spanning range. This system is current installed in Europe and it is called RADNET.

2.20 An interim solution for sharing data radar information is a proposal offered by Brazilian administration concerning the sharing of radar data of those facilities installed around its frontier with the States of SAM Region using a product called SISTRASAG. This is not really an automation solution, it is only to supply a remote display of Brazilian radar information to the States of SAM Regions that have frontier with Brazil.

2.21 Analyzing the different automation solutions, it should be noted that the bilateral solutions for Flight Plan and/or Surveillance Data Sharing may not be implemented in a timely manner and, under certain conditions, are not the most convenient way of accomplishment of the interconnection; however, it is the solution that the Region could implement in the short and medium term.

2.22 The multilateral solution for Flight Plan and/or Surveillance Data Sharing may prove itself of difficult implementation without a centralized project coordination; the eventually required support of Systems Providers to configure the systems or implement minor changes or upgrades may be more effectively negotiated collectively, rather than by individual ANSPs; the experience gained with multinational implementations, e.g. REDDIG, accomplished under the provisions of a specific Project coordinated by the ICAO SAM Regional Office; and, therefore, it is highly recommended that the interconnection of the automated ATC Centres in the CAR/SAM Region is accomplished via a specific Project, in a similar way to the former REDDIG Project

2.23 **Appendix C** of this working paper presents a proposed list of activities for the regional interconnection of automated ATC systems. It should be noted that the implementation mechanism for the indicated activities should be studied carefully in order to develop the ATC centres interconnection in a systematic way.

2.24 The meeting should note that the results of Project RLA/98/003 will be presented to the GREPECAS mechanism for review and comments.

3 Action required

3.1 The meeting is invited to:

a) takes note of the information provided;

b) analyze the current regional situation on automation system implementation presented in section 2 of this working paper from paragraph 2.1 to paragraph 2.13.

c) analyze the regional levels of automation interconnection possibilities for flight plan and data sharing presented in section 2 from paragraph 2.14 to paragraph 2.16 and the Appendix A and B.

d) analyze the solutions proposed for the interconnection of the regional automation system presented in section 2 paragraph 2.17 to paragraph 2.23 and Appendix C.

e) analyze others matter in relation with the subject that should be presented.

APPENDIX A

FLIGHT PLAN AND RADAR DATA INTERCONNECTION LEVEL

FLIGHT PLAN INTERCONNECTION LEVEL

Flight Plan Data Interconnection Level	Communication Protocol	State/ATC Center	Notes
1	AIDC	Argentina (Ezeiza, Cordoba)	System contemplated, but not used yet.
2	OLDI	Argentina, Chile, Colombia, Ecuador, Panamá, Uruguay, and CENAMER	System contemplated, but not used, with the exception of Chile.
3	ICAO Doc 4444 Coordination	Brazil, Venezuela	Implemented in the ACCs of Brazil for coordination between Internal Air Traffic Control Centers.
4	ICAO Doc 4444 (Manual Messages)		

RADAR PLAN INTERCONNECTION LEVEL

Surveillance Data Interconnection Level	Communication Protocol	Notes
1	Intercenter ASTERIX cat 62,63	Ecuador
2	Proprietary Intercenter ICD	Brazil, Venezuela
3	ASTERIX ICD Radar	
4	Proprietary ICD	Uruguay, Argentina
5	No shared Data	

APPENDIX B

Solution Allocation for the Interconnection levels between adjacent ACC

Note
A – Current Level of Interconnection
S – Possibility of Surveillance Radar Data Sharing using SISTRASAG
P – Possibility of Interconnection using the current Air Traffic Control System
P* - Possibility of interconnection using the Air Traffic Control System that is being installed

STATE: ARGENTINA										
ACC	ACC ADJ	FLIGHT PLAN INTERCONNECTION LEVELS				SURVEILLANCE INTERCONNECTION LEVELS				
		1	2	3	4	1	2	3	4	5
CORDOBA INSTAL.	ASSUNÇÃO				A					A
	LA PAZ				A					A
	EZEIZA	**P***	**P***		A	**P***		**P***		A
	MENDOZA				A					A
	RESISTENCIA				A					A
RESISTENCIA (NON-AUTO)	ASSUNÇÃO				A					A
	CORDOBA				A					A
	CURITIBA				A					A
	MENDOZA				A					A
	MONTEVIDEO				A					A
EZEIZA	RIVADAVIA				A					A
	MENDOZA				A					A
	SANTIAGO		**P***		A			**P***		A
	CORDOBA	**P***	**P***		A	**P***		**P***		A
	RESISTENCIA				A					A
	JOHANNESBURG				A					A
	MONTEVIDEO		**P***		A	**P***			A	
MENDOZA	EZEIZA				A					A
	SANTIAGO				A					A
	CORDOBA				A					A

(NON AUTO)										
RIVADAVIA	EZEIZA				A					A
(NON-AUTO)	SANTIAGO				A					A

STATE: BRASIL										
ACC	ACC ADJ	FLIGHT PLAN INTERCONNECTION LEVELS				SURVEILLANCE INTERCONNECTION LEVELS				
		1	2	3	4	1	2	3	4	5
AMAZÔNICO	BRASÍLIA			A				A		
	BOGOTÁ				A			**P**		A
	GEORGETOWN				A				**S**	A
	LA PAZ				A				**S**	A
	LIMA				A				**S**	A
	MAIQUETIA			**P**	A		**P**			A
	PARAMARIBO				A				**S**	A
	RECIFE			A				A		
	ROCHAMBEAU				A				**S**	A
	ATLÂNTICO				A					A
BRASÍLIA	AMAZÔNICO			A				A		
	CURITIBA			A				A		
	LA PAZ				A				**S**	A
	RECIFE			A				A		
	ATLÂNTICO				A					A
CURITIBA	ASSUNÇÃO				A				**S**	A
	BRASÍLIA			A				A		
	LA PAZ				A				**S**	A
	MONTEVIDEO				A			**P**		A
	RESISTÊNCIA				A				**S**	A
	ATLÂNTICO				A					A
RECIFE	AMAZÔNICO			A				A		
	BRASÍLIA			A				A		
	ATLÂNTICO				A					A
ATLÂNTICO (NON-AUTO)	AMAZÔNICO				A					A
	BRASÍLIA				A					A
	CURITIBA				A					A
	DAKAR				A					A
	JOHANNESBURG				A					A
	LUANDA				A					A
	MONTEVIDEO				A					A
	RECIFE				A					A
	ROCHAMBEAU				A					A

STATE: BOLIVIA										
ACC	ACC ADJ	FLIGHT PLAN NÍVEIS DE IMPLEMENTAÇAÕ				SURVEILLANCE NÍVEIS DE IMPLEMENTAÇAÕ				
		1	2	3	4	1	2	3	4	5
LA PAZ (NON-AUTO)	AMAZÔNICO				A				**S**	A
	ASSUNÇÃO				A					A
	BRASÍLIA				A				**S**	A
	CURITIBA				A				**S**	A
	CORDOBA				A					A
	LIMA				A					A
	SANTIAGO				A					A

STATE: CHILE										
ACC	ACC ADJ	FLIGHT PLAN INTERCONNECTION LEVELS				SURVEILLANCE INTERCONNECTION LEVELS				
		1	2	3	4	1	2	3	4	5
SANTIAGO	CORDOBA		**P**		A			**P**		A
	LIMA				A					A
	LA PAZ				A					A
	MENDOZA				A					A
	RIVADAVIA				A					A

STATE: COLOMBIA										
ACC	ACC ADJ	FLIGHT PLAN NÍVEIS DE IMPLEMENTAÇAÕ				SURVEILLANCE NÍVEIS DE IMPLEMENTAÇAÕ				
		1	2	3	4	1	2	3	4	5
BOGOTÁ	AMAZÔNICO				A			**P**	**S**	A
	GUAYAQUIL		**P**		A			**P**		A
	LIMA				A					A
	MAIQUETIA				A			**P**		A
	PANAMÁ		**P**		A			**P**		A
	BARRANQUILLA		**P**		A			**P**		A
	MAIQUETIA				A			**P**		A
	PANAMÁ		**P**		A			**P**		A

BARRANQUILLA	BOGOTÁ		**P**		A			**P**		A
	KINGSTON				A					A
	CURAÇAO				A					A

STATE: ECUADOR										
ACC	ACC ADJ	FLIGHT PLAN INTERCONNECTION LEVELS				SURVEILLANCE INTERCONNECTION LEVELS				
		1	2	3	4	1	2	3	4	5
GUAYAQUIL	BOGOTA		**P**		A	**P**		**P**		A
	LIMA				A					A
	CENAMER				A					A

STATE: FRENCH GUYANA										
ACC	ACC ADJ	FLIGHT PLAN INTERCONNECTION LEVELS				SURVEILLANCE INTERCONNECTION LEVELS				
		1	2	3	4	1	2	3	4	5
ROCHAMBEAU	AMAZÔNICO				A				**S**	A
	PARAMARIBO				A					A
	PIARCO				A					A
	ATLANTICO				A					A

STATE: GUYANA										
ACC	ACC ADJ	FLIGHT PLAN NÍVEIS DE IMPLEMENTAÇAÕ				SURVEILLANCE NÍVEIS DE IMPLEMENTAÇAÕ				
		1	2	3	4	1	2	3	4	5
GEORGETOWN	AMAZONICO				A				**S**	A
	PIARCO				A					A
	MAIQUETIA				A					A
	PARAMARIBO				A					A

STATE: PANAMA										
ACC	ACC ADJ	FLIGHT PLAN INTERCONNECTION LEVELS				SURVEILLANCE INTERCONNECTION LEVELS				
		1		3	4	1	2	3	4	5
PANAMA	BOGOTA		**P**		A			**P**		A
	BARRANQUILLA		**P**		A			**P**		A
	CENAMER		**P**		A			**P**		A

STATE: PARAGUAY										
ACC	ACC ADJ	FLIGHT PLAN INTERCONNECTION LEVELS				SURVEILLANCE INTERCONNECTION LEVELS				
		1	2	3	4	1	2	3	4	5
ASSUNCION (NON-AUTO)	CURITIBA				A				**S**	A
	LA PAZ				A					A
	RESISTÊNCIA				A					A

STATE: PERU										
ACC	ACC ADJ	FLIGHT PLAN INTERCONNECTION LEVELS				SURVEILLANCE INTERCONNECTION LEVELS				
		1	2	3	4	1	2	3	4	5
LIMA	AMAZONICO				A				**S**	A
	BOGOTÁ				A				**P**	A
	CHILE				A					A
	GUAYAQUIL				A					A
	LA PAZ				A					A

STATE: SURINAME										
ACC	ACC ADJ	FLIGHT PLAN INTERCONNECTION LEVELS				SURVEILLANCE INTERCONNECTION LEVELS				
		1	2	3	4	1	2	3	4	5
PARAMARIBO	AMAZÔNICO				A				**S**	A
	GEORGETOWN				A					A
	PIARCO				A					A
	ROCHAMBEAU				A					A

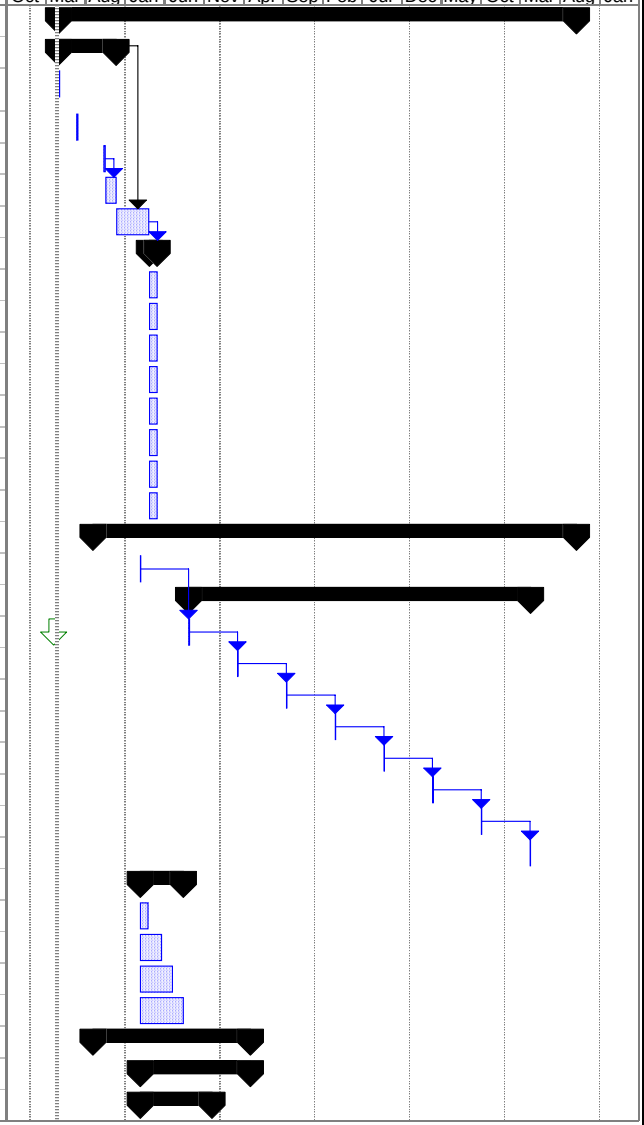
STATE: VENEZUELA										
ACC	ACC ADJ	FLIGHT PLAN INTERCONNECTION LEVELS				SURVEILLANCE INTERCONNECTION LEVELS				
		1	2	3	4	1	2	3	4	5
MAIQUETIA	AMAZONICO			**P**	A		**P**			A
	BOGOTA		**P**		A			**P**		A
	BARRANQUILLA				A			**P**		A
	PIARCO				A			**P**		A
	ROCHAMBEAU				A					A

STATE: URUGUAY										
ACC	ACC ADJ	FLIGHT PLAN INTERCONNECTION LEVELS				SURVEILLANCE INTERCONNECTION LEVELS				
		1	2	3	4	1	2	3	4	5
	CURITIBA				A				**S**	A
	EZEIZA		**P**		A	**P***		**P**	A	
	RESISTENCIA				A					A

MONTEVIDEO	ATLANTICO				A					A
	JOHANNESBURG				A					A

INTERNATIONAL ORGANIZATION: COCESNA										
ACC	ACC ADJ	FLIGHT PLAN INTERCONNECTION LEVELS				SURVEILLANCE INTERCONNECTION LEVELS				
		1	2	3	4	1	2	3	4	5
CENAMER	GUAIAQUIL				A					A
	KINGSTON				A					A
	LA HABANA				A					A
	MERIDA				A					A
	PANAMA		**P**		A					A
	MEXICO				A					A

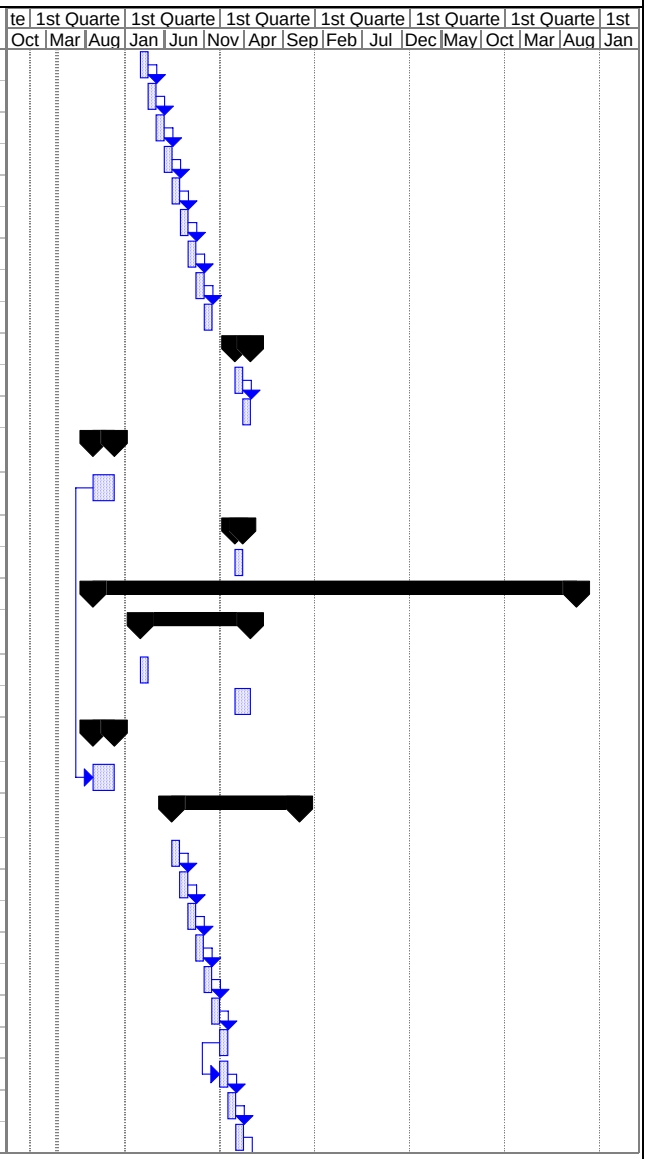
ID	Nome da tarefa	Duration	Start	Finish
1	**CAR/SAM Interconection Plan**	**1425 days**	**Mon 21/04/08**	**Fri 04/10/13**
2	**Plan Approval**	**160 days**	**Mon 21/04/08**	**Fri 28/11/08**
3	Plan Presentation in the 1ª GT CNS/ATM SAM-ATM/CNS/IG 1 Meeting	5 days	Mon 21/04/08	Fri 25/04/08
4	Plan Presentation ATM/CNS/SG/6	5 days	Mon 30/06/08	Fri 04/07/08
5	Plan presentation in the GREPECAS Meeting	5 days	Mon 13/10/08	Fri 17/10/08
6	CAR/SAM interconnection plan Approval	30 days	Mon 20/10/08	Fri 28/11/08
7	Project Managing Board Creation	90 days	Mon 01/12/08	Fri 03/04/09
8	**Project Organization**	**22 days**	**Mon 06/04/09**	**Tue 05/05/09**
9	Managing plan	22 days	Mon 06/04/09	Tue 05/05/09
10	Communication Plan	22 days	Mon 06/04/09	Tue 05/05/09
11	Human resources Plan	22 days	Mon 06/04/09	Tue 05/05/09
12	Cost Plan	22 days	Mon 06/04/09	Tue 05/05/09
13	Risk Assesment Plan	22 days	Mon 06/04/09	Tue 05/05/09
14	Escope Managing Plan	22 days	Mon 06/04/09	Tue 05/05/09
15	Quality plan	22 days	Mon 06/04/09	Tue 05/05/09
16	Procurement and Acquisition plan	22 days	Mon 06/04/09	Tue 05/05/09
17	**Plan execution**	**1330 days**	**Mon 01/09/08**	**Fri 04/10/13**
18	STARTUP MEETING	2 days	Mon 02/03/09	Tue 03/03/09
19	**Coordination Meetings**	**940 days**	**Fri 04/09/09**	**Thu 11/04/13**
20	1 Coordination Meeting	2 days	Fri 04/09/09	Mon 07/09/09
21	2 Coordination Meeting	2 days	Thu 11/03/10	Fri 12/03/10
22	3 Coordination Meeting	2 days	Wed 15/09/10	Thu 16/09/10
23	4 Coordination Meeting	2 days	Tue 22/03/11	Wed 23/03/11
24	5 Coordination Meeting	2 days	Mon 26/09/11	Tue 27/09/11
25	6 Coordination Meeting	2 days	Fri 30/03/12	Mon 02/04/12
26	7 Coordination Meeting	2 days	Thu 04/10/12	Fri 05/10/12
27	8 Coordination Meeting	2 days	Wed 10/04/13	Thu 11/04/13
28	**Institutional/Legal Documents Creation**	**120 days**	**Mon 02/03/09**	**Fri 14/08/09**
29	Responsability definition over Shared Resources	22 days	Mon 02/03/09	Tue 31/03/09
30	Operational Agreements Between States	60 days	Mon 02/03/09	Fri 22/05/09
31	Surveilance Area definition to be shared	90 days	Mon 02/03/09	Fri 03/07/09
32	Security Plan	120 days	Mon 02/03/09	Fri 14/08/09
33	**Flight Plan Interconection Implementation**	**434 days**	**Mon 01/09/08**	**Thu 29/04/10**
34	**Flight Plan interconnection using OLDI**	**304 days**	**Mon 02/03/09**	**Thu 29/04/10**
35	**First Phase**	**198 days**	**Mon 02/03/09**	**Wed 02/12/09**



Projeto: SAM1GNE19ApnC
Data: Thu 10/04/08

Tarefa — Etapa — Tarefas externas
Divisão — Resumo — Etapa externa
Andamento — Resumo do projeto — Prazo final

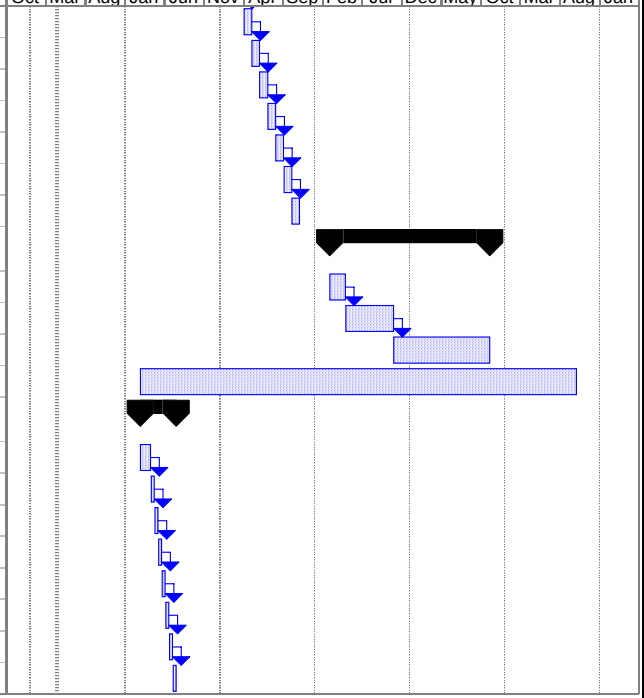
ID	Nome da tarefa	Duration	Start	Finish
36	EZEIZA-MONTEVIDEO	22 days	Mon 02/03/09	Tue 31/03/09
37	EZEIZA-CORDOBA	22 days	Wed 01/04/09	Thu 30/04/09
38	EZEIZA-SANTIAGO	22 days	Fri 01/05/09	Mon 01/06/09
39	BOGOTÁ-GUAYAQUIL	22 days	Tue 02/06/09	Wed 01/07/09
40	BOGOTÁ-PANAMÁ	22 days	Thu 02/07/09	Fri 31/07/09
41	BOGOTÁ-BARRANQUILHA	22 days	Mon 03/08/09	Tue 01/09/09
42	BARRANQUILHA-PANAMÁ	22 days	Wed 02/09/09	Thu 01/10/09
43	SANTIAGO-CORDOBA	22 days	Fri 02/10/09	Mon 02/11/09
44	PANAMÁ-CENAMER	22 days	Tue 03/11/09	Wed 02/12/09
45	**Second Phase (With Brazil)**	**44 days**	**Mon 01/03/10**	**Thu 29/04/10**
46	CURITIBA-URUGUAI	22 days	Mon 01/03/10	Tue 30/03/10
47	AMAZÔNICO-BOGOTÁ	22 days	Wed 31/03/10	Thu 29/04/10
48	**Flight Plan interconnection using Doc 4444 (CDN, LAM,ACP)**	**60 days**	**Mon 01/09/08**	**Fri 21/11/08**
49	MAIQUETIA - AMAZONICO Interconnection Comissioning	60 days	Mon 01/09/08	Fri 21/11/08
50	**Flight Plan interconnection using AIDC**	**22 days**	**Mon 01/03/10**	**Tue 30/03/10**
51	BRASIL-ARGENTINA	22 days	Mon 01/03/10	Tue 30/03/10
52	**Surveillance Data interconnection Implementation**	**1330 days**	**Mon 01/09/08**	**Fri 04/10/13**
53	**Surveillance Data interconnection Implementation using Intercenter ASTERIX 62/63**	**304 days**	**Mon 02/03/09**	**Thu 29/04/10**
54	EZEIZA-MONTEVIDEO	22 days	Mon 02/03/09	Tue 31/03/09
55	BRASIL- MONTEVIDEO	44 days	Mon 01/03/10	Thu 29/04/10
56	**Surveillance Data interconnection Implementation with Proprietary ICD**	**60 days**	**Mon 01/09/08**	**Fri 21/11/08**
57	AMAZONICO-MAIQUETIA	60 days	Mon 01/09/08	Fri 21/11/08
58	**Surveillance Data interconnection Implementation using ASTERIX Radar ICD**	**352 days**	**Wed 01/07/09**	**Thu 04/11/10**
59	EZEIZA-SANTIAGO	22 days	Wed 01/07/09	Thu 30/07/09
60	EZEIZA-CORDOBA	22 days	Fri 31/07/09	Mon 31/08/09
61	EZEIZA- MONTEVIDEO	22 days	Tue 01/09/09	Wed 30/09/09
62	AMAZÔNICO-BOGOTÁ	22 days	Thu 01/10/09	Fri 30/10/09
63	CURITIBA-MONTEVIDEO	22 days	Mon 02/11/09	Tue 01/12/09
64	SANTIAGO-CORDOBA	22 days	Wed 02/12/09	Thu 31/12/09
65	BOGOTÁ-GUAYAQUIL	22 days	Fri 01/01/10	Mon 01/02/10
66	BOGOTÁ-PANAMÁ	22 days	Fri 01/01/10	Mon 01/02/10
67	BOGOTÁ-BARRANQUILHA	22 days	Tue 02/02/10	Wed 03/03/10
68	BOGOTÁ-MAIQUETIA	22 days	Thu 04/03/10	Fri 02/04/10



Projeto: SAM1GNE19ApnC
Data: Thu 10/04/08

Tarefa | Etapa | Tarefas externas
Divisão | Resumo | Etapa externa
Andamento | Resumo do projeto | Prazo final

ID	Nome da tarefa	Duration	Start	Finish
69	BOGOTÁ-LIMA	22 days	Mon 05/04/10	Tue 04/05/10
70	PANAMÁ-CENAMER	22 days	Wed 05/05/10	Thu 03/06/10
71	CORDOBA-EZEIZA	22 days	Fri 04/06/10	Mon 05/07/10
72	MAIQUETIA-BARRANQUILHA	22 days	Tue 06/07/10	Wed 04/08/10
73	BARRANQUILHA-PANAMÁ	22 days	Thu 05/08/10	Fri 03/09/10
74	BARRANQUILLA-MAIQUETIA	22 days	Mon 06/09/10	Tue 05/10/10
75	MAIQUETIA-PIARCO	22 days	Wed 06/10/10	Thu 04/11/10
76	**Surveillance Data interconnection Implementation using RADNET for the CAR/SAM Region**	**440 days**	**Tue 01/03/11**	**Mon 05/11/12**
77	Specification	44 days	Tue 01/03/11	Fri 29/04/11
78	Acquisition	132 days	Mon 02/05/11	Tue 01/11/11
79	Installation	264 days	Wed 02/11/11	Mon 05/11/12
80	Telecommunication infrastructure Coordination	1200 days	Mon 02/03/09	Fri 04/10/13
81	**Surveillance Data interconnection Implementation using SISTRASAG**	**100 days**	**Mon 02/03/09**	**Fri 17/07/09**
82	BRASIL	30 days	Mon 02/03/09	Fri 10/04/09
83	LIMA	10 days	Mon 13/04/09	Fri 24/04/09
84	LA PAZ	10 days	Mon 27/04/09	Fri 08/05/09
85	ASSUNCION	10 days	Mon 11/05/09	Fri 22/05/09
86	GEORGETOWN	10 days	Mon 25/05/09	Fri 05/06/09
87	PARAMARIBO	10 days	Mon 08/06/09	Fri 19/06/09
88	ROCHAMBEAU	10 days	Mon 22/06/09	Fri 03/07/09
89	RESISTENCIA	10 days	Mon 06/07/09	Fri 17/07/09



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