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1 Introduction

In accordance with Regulation (EU) 2017/373, ATM/ANS.OR.D.025 Reporting requirements, Air navigation service providers shall be able to provide an annual report of their activities to the relevant competent authority.

That annual report shall cover their financial results without prejudice to Article 12 of Regulation (EC) No 550/2004, as well as their operational performance and any other significant activities and developments in particular in the area of safety.

The annual report shall include as a minimum:

a) an assessment of the level of performance of air navigation services generated;

b) the performance of the air navigation service provider compared to the performance targets established in the business plan referred to in point 2.2.1, reconciling actual performance against the annual plan by using the indicators of performance established in the annual plan;

c) provide an explanation for differences with the targets, and identify measures for closing any gaps during the reference period referred to in Article 11 of Regulation (EC) No 549/2004;

d) developments in operations and infrastructure;

e) the financial results, as long as they are not published separately in accordance with Article 12(1) of Regulation (EC) No 550/2004;

f) information about the formal consultation process with the users of its services;

g) information about the human resources policy.

Air navigation service providers shall make the content of the annual report available to the Commission and the Agency on request and to the public under the conditions set by the competent authority in accordance with national law.

2 Service Description & Organisation

2.1 Description

The EAD is a service provided in accordance with Decision N° 83 of 13 July 2000 of the EUROCONTROL Permanent Commission which entrusts EUROCONTROL with the task of developing, establishing and operating a European AIS Database ("EAD").

The operational Services include:

- Static Data Operations;
- International NOTAM Operations;
- INO and Briefing Facility;
- Published AIP Management System.

Additionally, the following services are offered:

- Electronic AIP production;
- Chart production;
- Workflow Management.

The service entered into operations in June 2003 and is provided in accordance with the Decision of the Permanent Commission N°101 on the rules governing the provision of Aeronautical Information Services to and by EUROCONTROL for the operation of the European AIS Database service.

The EAD service relies on its own infrastructure which includes two duplicated IT sites, two Operations Centres with helpdesk functions. It was initially conceived to support AIS data management (ICAO Annex 15) and distribution covering the whole data set of Europe and the worldwide "Minimum Data Set" which corresponds to the data needed for operational purpose.

1.1 Organisation

EUROCONTROL is, on behalf of its member States, the owner and sponsor of EAD and ensures that the service is provided in accordance with the service level and performance requirements.

The provision of the EAD service for IT, data operations, and training is outsourced to external service providers (Industry Partners).

ANSP/AISP are involved in the supervision of the EAD services through the EAD Service Steering Group (SSG), reporting to the Director Network Manager, with a view to maintain commitment from stakeholders and encourage the use of a standardised approach to the exchange of Aeronautical Information and related data. The EAD Service Steering Group (SSG) is therefore predominantly a service and business oriented group with the aim of providing high-level guidance on all the elements in support of the EAD being an

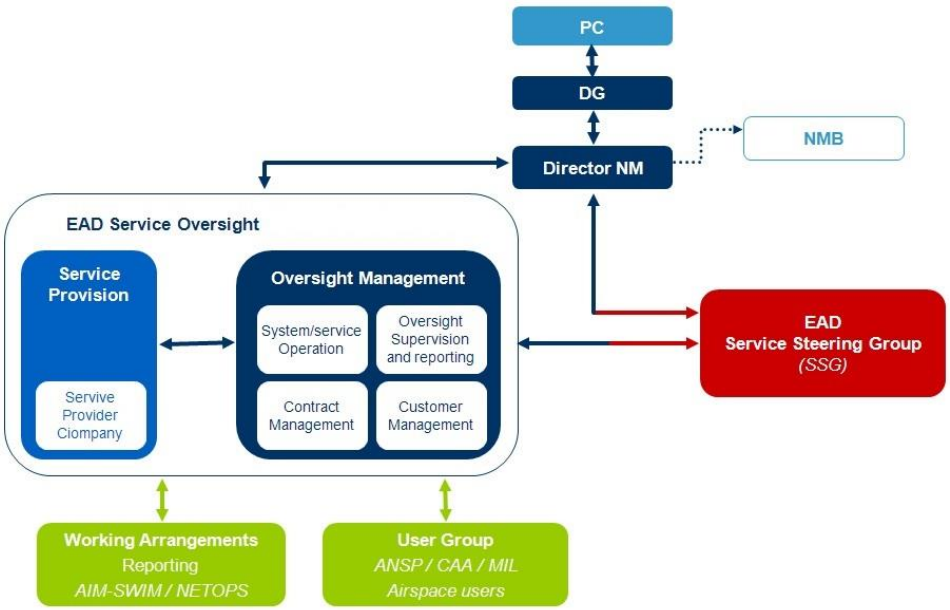
integrated, harmonized and interoperable solution for use of safe, secured and high quality aeronautical information.

Network Management Directorate (NMD) ensures the distribution/coordination of the information about the EAD service status and evolution received from both the EAD oversight management and EAD SSG to NM Board, Director General, and Provisional Council.

EAD is managed by the European Aeronautical Information Management Service (EAIMS) that is part of the NMD/ INF/ IAC Unit.

It that is responsible for:

- Oversight of the Service provision and related contracts in order to ensure a continuous quality of the delivered service;
- Management of the maintenance and the evolution of the EAD system and service,
- Stakeholders' management in order to support the migration of data providers and data users to the EAD.



EAD Model – oversight by EUROCONTROL/NMD

3 Scope

This Annual Report describes the activities carried out in 2019 by EAD as a service, which entails:

- EUROCONTROL/NMD/INF/IAC/EAIMS as the system and service manager;
- The operations carried out by the data operations and training services provider;
- The operations carried out by the IT service centre and application maintenance provider.

These activities are linked to the following business objectives described in the Agency Work Programme:

- Airspace / AIS Information Management Service Provision;
- Airspace / AIS Information Management Development;
- European ATM Information Management Service.

4 EAD CLIENT MANAGEMENT

4.1 Objective and scope

This chapter presents the status of EAD activities in the area of customer management.

It provides an overview of the Data Providers (DPs) and Data Users (DUs) connected to the EAD and of the prospective customers.

This chapter also provides an overview of the service and royalty charges invoiced and the planned forthcoming events with customers.

4.2 Status of Data Providers

4.2.1 General overview

The map below shows the connection status of ECAC and non-ECAC States:

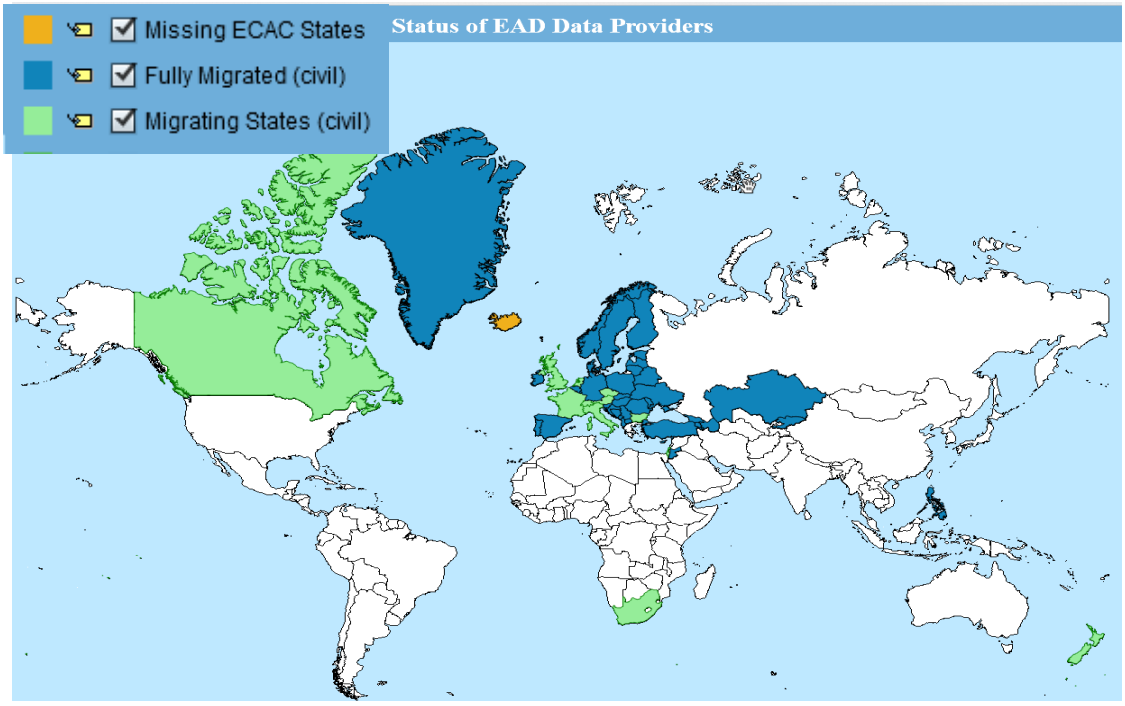


Figure 1 Migration status

Nine ECAC States (in green) are still only partially migrated because they do not maintain the full SDO dataset in the EAD and/or have not migrated to all services.

Iceland has not migrated but approached the EAD in January 2020 via a letter of intent for a potential migration to the EAD. High-level discussions are being held to decide on the best way forward.

Of the non-ECAC States, Belarus, Jordan, Kazakhstan, Kyrgyzstan and the Philippines have fully migrated as Data Providers, whilst Canada, New Zealand and South Africa have only partially migrated.

4.2.2 ECAC region – civil organisations, ongoing migrations

- **France**

The DSNA is migrating progressively to the EAD, as an EAD Pro Data Provider for INO and Flight Briefing services, in three steps:

1. Phase 1: Deployment of INO and SDO DP SIA completed (Q3 2018)
2. Phase 2: The deployment of INO https and INO-DU BF in the French Airport Reporting Offices (NOTAM proposal/consultation and FPL functions) is expected after the deployment of EAD Release 12.
3. Phase 3: Migration of Briefing tools to the EAD interface via the AIMSL is ongoing with an estimated date of migration in Q2 2020.

- **Greece**
  - The HCAA is in the process of migrating for INO, SDO and PAMS services as an EAD Pro Data Provider and Data User.
  - Hardware and software have been delivered.
  - Training has been provided.
  - INO, PAMS and SDO services are expected to go live between Q2 2020 and Q3 2020.
  - Flight Briefing services will be deployed at a later stage.
- **Italy**
  - ENAV first intended to migrate to the EAD as an EADPro Data Provider for INO, and is now currently working on a new Migration and Transition Plan for INO migration.
  - ENAV carried out training at the GEAD in Madrid on operational matters and visited NAV Portugal to gain further knowledge from an ANSP already using the EAD for the related services.
  - ENAV has been approached by the EAIM to migrate to a full SDO data set but at the moment there is no expected date for this migration.
- **Switzerland**
  - Skyguide is investigating the possibility of becoming a Data Provider and Data User for INO, Flight Planning and Briefing services.
  - Skyguide is expected to provide a specific plan and roadmap for EAD migration during the course of 2020
  - A draft EAD agreement and migration and transition plan have been drawn up and are being reviewed by the customer.
- **Swedavia**
  - Swedavia owns, operates and develops Sweden’s national basic infrastructure of airports. Its eight airports form a system which connects Sweden together, and connects Sweden with the rest of the world.
  - Swedavia intends to become an INO Data Provider (only for SNOWTAM for the eight airports which are owned by Swedavia).
  - Swedavia is currently in the process to access the production system and is expected to go live during Q2 2020.
- **Naviair**
  - During Q4 2019, Naviair informed the EAIM that the project to migrate to the EAD Flight Planning and Briefing services has been cancelled owing to a lack of technical resources for technical analysis.
- **Avinor**

- Avinor intends to migrate to the EAD Flight Planning and Briefing services, but the process is on hold until further notice.

4.2.3 ECAC Region – military organisations

In the context of the initiative for the Harmonisation of Military Aeronautical Information in Europe through the EAD (HMAI), managed by the EUROCONTROL Civil-Military ATM Coordination Division since 2012, the EAIM has started active negotiations with the following military organisations:

- **Italian Air Force (ITAF)**
  - ITAF's intention is to become a B2B (MyEAD) Data Provider for SDO and PAMS.
  - The EAD Agreement was signed in Q1 2020 and the Migration and Transition Plan is being reviewed by the customer.
- **Belgian Defence COMOPSAIR**
  - COMOPSAIR migrated to INO DU in 2013.
  - In 2017, COMOPSAIR agreed to move forward with the migration to INO DU including flight planning and briefing facilities using EAD PRO (B2C).
  - COMOPSAIR is currently going through the testing phase and plans to go live between Q2 2020 and Q3 2020.
- **Portuguese Air Force (POAF)**
  - In the context of its AIM project, the POAF plans to migrate to the EAD as a DP/DU for INO PAMS and SDO and to connect as a B2B customer (MyEAD).
  - It's reviewing the EAD Agreement and M&T Plan.
  - There is at present no estimate of the timetable.

4.2.4 States with a comprehensive agreement with EUROCONTROL

Israel and Morocco have signed a comprehensive agreement with EUROCONTROL and therefore benefit from the full portfolio of services provided by the Agency in the same way as they are provided to any other EUROCONTROL State.

- **Israel**
  - The Israeli Airport Authority (IAA):
    - is a user of all EAD services;
    - on 17 January 2019 successfully connected as an INO Data User for use of briefing facilities;
    - is planning to migrate to the EAD as an EAD Pro Data Provider for INO and flight planning services in Q3 2020.
- **Morocco**
  - ONDA has informed the EAD of its intentions to become an EAD Data Provider. A telephone conference between the EAIM and ONDA took place in November 2019 in which ONDA stated its willingness to move forward with the migration. Negotiations are currently on hold, pending ONDA's strategic decision on how to modernise its AIM system.

4.2.5 Outside the ECAC region

The following negotiations or projects are ongoing:

- **Brazil**
  - The DECEA expressed its interest in collaborating with the EAD for the exchange of aeronautical information in the context of its cooperation agreement with EUROCONTROL.

  - This would involve migration to the EAD via B2B, first as an INO data user and subsequently as a Data Provider.
  - The EAD Agreement has been signed by EUROCONTROL and is currently with DECEA for final approval.
- **States of the Middle-East/MIDAD**
  - Qatar CAA has started negotiations to become a B2B Data Provider for all services.
  - Iraq CAA has approached the EAD to evaluate the possibility of becoming a Data Provider. Negotiations are ongoing.
- **South Africa/ATNS**
  - The ATNS is in the process of migrating to the EAD as a Data Provider for INO, SDO and PAMS (B2B).
  - Although the operational phase of the migration to SDO started on 9 November 2017, some technical and operational problems have still to be addressed which affect the completeness of the data loaded in SDO.
  - The ATNS intends to become a hub for African countries in the southern part of the continent. In this context, the EAD agreement with an adapted charging scheme has been sent to the ATNS for it to review (in line with the agreed principles).

4.3 Status of Data Users

The table below shows the number of customers using EAD services, broken down by type of customer, and reported over the last years to the SSG.

Customer type	SSG#26 Oct. '17	SSG#27 May '18	SSG#28 Oct. '18	SSG#29 Apr. '19	SSG#30 Nov .'19	SSG#31 May '20
Type 1	93	103	87	114	124	122
Type 2	20	18	18	23	19	26
Type 3	91	72	63	46	51	47
Total	**204**	**193**	**168**	**183**	**194**	**195**
Developers	14	9	8	8	8	9
Total	**218**	**202**	**176**	**191**	**202**	**204**

Table 1 Summary of number of EAD customers per type

4.4 EAD service and royalty charges

4.4.1 Invoicing

The invoicing of EAD service charges for the services made available in 2020 has been completed. The table below provides an overview of the situation on 19 May 2020.

Table 2 EAD service and royalty charges – situation at 7 April 2020

Client type	DP DU	Customers 2019	SVC € 2019	ROY € 2019	Total € 2019	Outstanding € 2019	Customers 2020	SVC € 2020	ROY € 2020	Total € 2020	%
Type 1	**DP**	*43*	*Contribution through en-route air navigation charges*				*43*	*Contribution through en-route air navigation charges*			
	DU	*72*					*79*				
Total		***115***					***122***				
Type 2	**DP**	*9*	591,386		591,386	0	*9*	667,592		667,592	
	DU	*19*	73,981		73,981	0	*16*	75,224		75,224	
Total		***28***	**665,367**		**665,367**	**0**	***26***	**742,816**		**742,816**	**+11.6**
Type 3	**DU**	***51***	**299,486**	**22,805**	**322,291**	**9,051**	***47***	**233,020**	**164,06**	**397,226**	**+23.3**
Developers	**DW**	***8***	**24,000**		**24,000**	**0**	***9***	**27,000**		**27,000**	**+12.5**
Total		***202***	**988,853**	**22,805**	**1,011,658**	**9,051**	***204***	**1,002,836**	**164,206**	**1,167,042**	**+15.4**

4.5 Events

4.5.1 Planned events

9th meeting of the Chart Working Group– 4-5 September 2019 – Nedgraphics (Vianen, The Netherlands)

The meeting did not take place owing to shortcomings and delays relevant to EAD Release 12. EAD R12 deployment was considered to be a priority and it was felt that the meeting should not be scheduled until after deployment. The meeting was tentatively scheduled for spring 2020, but owing to the reorganisation of EUROCONTROL, the meeting will be organised in accordance with the new working arrangements.

11th meeting of the (e)AIP Working Group– 23-25 October 2019 – M-AIS (Edinburgh, Scotland)

The meeting did not take place owing to shortcomings and delays relevant to EAD Release 12. EAD R12 deployment was considered to be a priority and it was felt that the meeting should not be scheduled until after deployment. The meeting was tentatively scheduled for spring 2020, but owing to the reorganisation of EUROCONTROL, the meeting will be organised in accordance with the new working arrangements.

The ***INO Working Group*** is postponed until further notice.

The dates of the next meeting of the ***EAD Service and Royalty Charging (ESRC) Sub-Group*** will be discussed after EAD SSG-32, at which the outcome of deployment of the new charging scheme and allocation of expected revenue will be presented.

4.6 Transition to SDD

4.6.1 Transitions currently ongoing

- AVINOR expects to migrate to SDD in Q2 2020.
- SloveniaControl expects to migrate to SDD in Q3 2020.

4.6.2 Transitions expected in Q4 2020

- LGS Latvia

5 System and Service update

5.1 IT aspects

In accordance with the certification of the EAD Service, ITP is following the established processes.

Since the last SSG in November 2019, the activities listed have been completed under the umbrella of the certified service:

- The EAD Service connection via NewPENS was successfully finalised on 25 October 2019.
- The deployment of the upgraded EAD service desk and the upgraded EAD knowledge base failed on 26 November2019 and a rollback was necessary. The successful deployment took place on 16 December 2019.
- Deployment of a hot fix for INO DU in December 2019
- Deployment of a hot fix for SDD in December 2019
- Several data changes and configuration changes were deployed in accordance with the EAD change management process.

The above-mentioned upgrades, fixes, data changes and configuration changes were assessed and verified and the deployment was in close cooperation with the competent oversight authority of the EAD Service (i.e. EASA).

The safety support documentation and other regulatory documents (i.e. The Technical File, the Declaration of Verification, the Declaration of Suitability for Use and the Verification Compliance Matrix) have been uploaded into OneSky Teams for the information of EAD clients.

The notification to EASA for the planned patch set was handed over to the oversight authority, as it was necessary to update the content and the planning.

5.2 Safety, Security and Quality aspects

5.2.1 Compliance and Certification

In the context of the EASA continued oversight programme, two EASA audits of the 2019-2020 oversight cycle took place on 18 and 19 February 2019 at EUROCONTROL headquarters and on 02 and 03 July 2019 at Frequentis headquarters. The audits were successful and EUROCONTROL did a follow-up by addressing the findings with Corrective Action Plans in cooperation with EASA and NMD/SAF/SQS.

A Transition Plan to the new EU regulatory framework (Regulation 373/2017) has been prepared and an update of the EAD Compliance Matrix has been done in close cooperation with NMD/SAF/SQS of EUROCONTROL as well as EASA. EAD processes affected by the new regulation were amended accordingly. The safety support documentation of EAD Releases was also amended due to the changes imposed by the new framework and was applied as from EAD Release 12.

EAD updated its Data Protection relevant processes in order to maintain compliance with the EUROCONTROL Data Protection Regulation with the goal to ensure the protection of clients' personal data. This has been done in close cooperation with the EUROCONTROL legal

department. A Privacy Notice has become available in the EUROCONTROL website addressing EAD clients' protection of personal data.

In the context of NM ISO 9001 certification, EAD was audited in November 2019 successfully with no findings being raised.

5.2.2 Safety support

In accordance with the EAD regulatory framework (i.e. Commission Implementing Regulation (EU) 2017/373), the EAD Service must be specified in a single document (see EAD Service Specifications). The document was being prepared in order to be provided to EASA as well as the EAD clients.

In addition, the former safety methodology followed by the EAD (the SAM methodology) was to be replaced by a new one, which is documented in the EAD Safety Support methodology. The document was also prepared to be provided to EASA as well as to the members of the SSG.

In general, in the context of the new Safety Support methodology, the safety assessment process is replaced by a safety support assessment process with the safety support argument being that, following and during the respective change, the system behaves and will continue to behave as specified in the specified context, the context being described in the above-mentioned EAD Service specifications.

Functional Hazard Assessment, Preliminary System Safety Assessment, System Safety Assessment and Safety Case are replaced by a new set of documents comprising a Safety Support Assessment and a Safety Support Case for all EAD Releases.

EAD Release 12 Patch Set SNOWTAM is the first EAD Release that was planned to be deployed under the new regulatory framework, and its Safety Support documentation must therefore be based on the above-mentioned new Safety Support Methodology.

With regard to changes outside the context of EAD Releases (configuration, data and procedure changes, hot fixes, Patch Set 1), they have already been communicated to EASA, depending on their nature, for approval or for information in the course of 2019..

5.3 EAD Network update (PENS and new PENS)

5.3.1 Introduction

PENS (PAN European Network Service) is serving the EAD, providing an end-to-end network solution, supported by the ANSPs and managed by the PMU [Pens Management Unit] at EUROCONTROL.

5.3.2 Documentation and Contractual Framework

The working arrangement with the PMU makes provision for performance reporting of the network. A monthly report is provided by the PMU to the EAIM Unit to report on performance, problems and mitigations.

5.3.3 Operations

At the beginning of 2019, several clients of the EAD reported slow network performance.

A fixed rerouting of selected traffic took place. Close monitoring is ongoing and the situation is stable.

It is no longer planned to order more bandwidth because the fixed rerouting improved the situation with the lack of bandwidth.

5.3.4 New PENS

The PMU is not only managing the PENS network but also working on the successor of PENS – New PENS.

5.3.5 Status of New PENS implementation for the EAD

EASA accepted the implementation of NewPENS on 23 October 2019. The EAD will follow the EAD Migration Scenario Plan.

Following the successful migration of the first DOP Centre, deployed on 25 October, information was sent to clients that they could commence their migration.

At the date of production of the report, 10 clients had not yet migrated to the new PENS. Reminders were sent several times.

5.4 Business continuity test 2019

The Business Continuity Test (BCT) 2019 was a DOP, ITP and EUROCONTROL exercise without the contribution and direct participation of EAD clients, on 15 November 2019. The scope of the test was to check whether the staff concerned will correctly apply the appropriate contingency actions in specific situations, on time and in accordance with the procedures laid down in the BCP (business continuity plan).

The 2019 scenario was the simulation of loss of electricity in DOP-C Frankfurt.

This test proved that the EAD's dual site concept is correctly implemented and operational. Additionally, the staff at ITP and DOP were found to be fit for alerts and problems, which can happen at any time without advance warning.

The test was successfully executed. Some observations were recorded and will be followed up as per the current quality procedures.

5.5 SDC tool and DQR annotation

The maintenance of the SDC (SDO Data Completeness) tool is ensured and the content is updated in two AIRAC cycles.

5.6 Infrastructure changes

During the reporting period, no infrastructure problems were detected.

Close monitoring is ongoing to ensure that performance remains as defined at EAD Release 12.

The monitoring includes amongst other parameters:

- the bandwidth B2B (site to site);
- capacity in terms of CPU and memory
- storage capacity at both IT centres
- The firewall situation.

6 AI Operations Sub-Group Report

6.1 Introduction

Since EAD SSG-30, one (1) AI Operations Sub-Group (AI Operations) meeting has been held. The 20th AI Operations meeting (AI-Operations-20) was held on 26-27 November 2019, attended by 47 participants from 28 States and 8 representatives from the Agency (NMD).

The meeting was chaired by Mr Uroš Grošelj, Slovenia Control, as the Sub-Group's current external chairperson.

6.2 AI Operations Work Programme/Action Plan

AI Operations continues to work in accordance with the Work Programme and the Action Plan. Actions in progress are:

a) ACT17: Support development of EAD SDO Data Harmonisation Objectives – due date prolonged to end-2020
b) ACT21: Support the RNAV Approach Implementation Sub-Group with AIS expertise – due date prolonged to end-2020
c) ACT28: Initiate a review of the OPADD in relation to the changes introduced by the new GRF RSC, on the basis of clarifications provided on questions/problems in Appendix A and guidance material provided by ICAO – due date by the end of Q2 2020.

ACT22 was finalised at AI-OPS-20 with the final report of the AIXM Coding Specifications Focus Group. The official proposal to disband the Group and to establish two dedicated expert groups to support further development of the coding guidelines for instrument flight procedure data sets and the finalisation of Digital NOTAM Specification 2.0 is going to be presented to AIM/SWIM Team 18.

ACT25 has been closed as well since the last meeting with the finalisation of the AIXM Specifications Coding Group. The excluded topic "end of the day" was examined and wrapped-up in the AIXM Specifications Coding Group. A solution for digital coding was found there but does not help the paper presentation, resulting in subsequent closure of the topic at the AI-OPS-20.

The detailed AI Operations Action Plan with newly proposed actions is provided in Appendix B AI Operations SG Action Plan.

6.3 AIXM Coding Specification FG conclusion and request for expert groups

The objective of the AIXM Coding Specification Focus Group (FG) was to allow the interoperability of the various AIXM implementations by ensuring uniformity in the data encoding patterns. The AIXM Coding Specification FG was established for the period Q2 2016 to Q2 2019, and it reports to the AI Operations Sub-Group. The Group benefited from a close working relationship with the IATA Digital Aeronautical Data Exchange (DADE) Working Group, which provided a valuable IFR user perspective. The Group also benefited from the participation of the FAA, the NGA, NavCanada, Airservices Australia and several other non-European aeronautical information experts, who are interested in ensuring that the coding guidelines are applicable globally.

Actions of the AIXM Coding Specification FG resulted in finalisation of the AIP data set coding guidelines, while the obstacle data set coding guidelines are currently under development with collaboration from expertise centred on the EUROCONTROL Terrain and Obstacle Data

(TOD) Manual. The work on the instrument flight procedure data set coding guidelines remain in the initial work step, with further progress depending on securing support from procedure design and coding experts, currently under-represented in the current FG.

In parallel with the work to deliver the data set coding specification, the FG is making progress on the Digital NOTAM Specification. Digital NOTAM Specification version 2.0 will also be an AIXM coding specification. The FG is focused on the definition of the rules for encoding NOTAM information as digital AIXM data sets, on improvements to the current NOTAM scenarios, and on new coding scenarios. To secure the finalisation of Digital NOTAM Specification 2.0 following the disbanding of the FG, a dedicated expert group has been established.

As a result of AI-Operations-20, the following proposals to the AIM/SWIM Team were supported by the SG:

a) Termination of the FG as planned

b) Establishment of two dedicated expert groups to support the further development of the coding guidelines for instrument flight procedure data sets and the finalisation of he Digital NOTAM Specification 2.0

c) Until the new groups are approved and start their work, current AIXM Coding Specification Focus Group to continue work on the coding rules

6.4 ECNTRL guidelines for Operating Procedures for AIS Dynamic Data (OPADD)

The AI-OPS-20 made comments on the EAD approach with regard to identified SNOWTAM problems. Furthermore, the OPADD Action Group has been initiated to update the document with regard to recognised ICAO guidance on the issuing of SNOWTAMs. The update is limited to critical changes owing to time constraints. The approval of the AI Operations SG and the AIM/SWIM Team will be requested by correspondence in Q2/2020 with a view to publication of the material before November 2020.

AI Operations members noted the provision of the best practices for elevation values in the NOTAM Q-line. This will be considered as part of the next OPADD update.

6.5 Support for EAD SDO Data Harmonisation Objectives

The AI Operations SG continues to support the development of the EAD Static Data Harmonisation Objectives (DHO). AI-Operations-20 agreed to make comments on SDO DHOs posted on the AI-OPS discussion forum:

a) SDO DHO-5: [Airspace] Coded airspace identifier

b) SDO DHO-7: [Airspace] Free Route Airspace

c) SDO DHO-13: [Route segment usage] Type applicability and coding in combination with levels and working hours/timetable

d) SDO DHO-17: [Designated points] VFR Reporting Points

e) SDO DHO-18: [Airspace] Aerial sports and recreational activities

f) SDO DHO-24: [Airspace] No Planning Zones (NPZs).

A proposal to the EAD SSG/AIM-SWIM Team was initiated by the AI-OPS chairman and supported by the Sub-Group to establish an expert group in order to support the adaptation

of the EAD Data Harmonisation Objectives (DHOs) for the new SDD sub-system and their further development, in relation to the AIXM coding guidelines for the ICAO data sets.

6.6 Users corner

The Sub-Group Chairman, Mr Uroš Grošelj, on behalf of Ms Olga Mašinskaja (EANS Estonia), presented the conclusion of the ICAO NOTAM questionnaire published in September 2019. The SG members appreciated the outcome and noted the description of the amendment proposal or action.

6.7 Next meeting of the AI Operations Sub-Group

- AI Operations-21: 16-17 June 2020 (correspondence/teleconference)
- AI-Operations-22: 1-2 December 2020 tentative (TBC)

7 DATA OPERATIONS

7.1 EAD SDO Data Completeness

7.1.1 Free Route Airspace (FRA) analysis

EAD performs the analyses on FRA data in SDO twice a year in preparation for reporting to the SSG SG meetings. The year 2019 covered two reporting periods: February – September 2019 (SSG-30) and from October 2019 to February 2020 (SSG-31).

The EAD checks if the FRA data is loaded in the SDO and DPs follow the operational rules defined in *EAD SDO DHO-7: [Airspace] Free Route Airspace*.

The scope of the FRA analysis is covered by 38 migrated DPs (ECAC). In accordance with the second report, thirty-one have implemented FRA (82%), and of these, one DP does not load FRA data into SDO.

In essence, adherence to EAD SDO DHO-7 is improving. The number of DPs which are fully compliant has increased from 15 to 17 (from 47% to 55%). The timesheets are correctly loaded by all DPs. Linkage of the FRA Airspace Volume to the significant point through the related entity [SPA] remains the most challenging.

Several Data Providers made progress in addressing discrepancies (12 DPs). DPs proceeded to open the EAD SD tickets with questions for clarification and requests for support. In total, three Data Providers performed the corrective actions (mostly on Timesheets and Local Type).

7.1.2 Completeness problems

7.1.2.1 Changes in publishing the AIP data

A recurrent problem is that some data providers have a tendency to withdraw data from AIPs, respectively from SDO in different circumstances. This leads to client complaints and may have a negative impact on EAD data completeness.
A new problem has arisen related to withdrawal of the en-route obstacles from the State AIPs. The DP was in the process of removing all ENR obstacles from the SDO and would refer only to their website with the Excel file referred to as ICAO digital data sets.
A link to the DP's web-site has been inserted in the AIP (GEN).The most affected seemed to be data from the AIP - ENR Obstacles and AD Sections While the direct impact had been observed in static data maintenance domain, if continued, would also affect the International NOTAM Operations and Flight Briefing Services, NOTAM validation and AIP production.

7.1.2.2 VFR data inconsistencies in the EAD

The EAD has received input from DPs highlighting the following inconsistency problems:
"Neighbouring state has published all VFR Reporting Points (VRP) in the AIP, ENR 6.3.1 -1 to 28, but not loaded to EAD."This situation has an impact on the preparation of Narrow Route PIBs, whereas the DP reporting the problem is forced to delete those VFR points from the route.
Another example is that the neighbouring State has published VFR routes but not loaded them into the EAD. These routes are published only on the VFR chart, but they are used by pilots to file flight plans. Note: All VFR Reporting Points are loaded into the EAD.

It was suggested that the topic be referred to the Operational Excellence Programme for further discussion on harmonisation of VFR data provision.

7.1.3 Tools supporting data completeness

7.1.3.1 SIGMA (SDO Input Guidance Material)

The review of the SIGMA (AIXM 4.5) contents is performed on a yearly basis. Along with the 2019 content update, the EAD had introduced the technical improvements (stylesheets & search functionality). Deployment on the production system took place on 11 October 2019, preceded by the EAD Client Information distributed.

7.1.3.2 EAD SDO Data Completeness (SDC) reporting

The EAD monitors SDO completeness by using the SDC tool and the results were reported to the SSG meetings twice a year: with the baseline for data updates for AIRAC effective date 28 February and 15 August 2019 AIRAC. The monitoring in general observed a slight increase in data completeness and use of the SDC tool by the DPs compared with 2018.
The SDC tool also facilitates the annotation of data items to inform EAD Clients of DQR annotation status for each data item provided by the EAD. All migrated EAD DPs are eligible and encouraged to apply the process and use the tool. The published DQR annotation reports can be accessed by EAD clients via the EAD knowledge base and/or EUROCONTROL website. The reports are updated every two AIRACs in accordance with the SDC tool maintenance cycle.

7.2 EAD SDO data harmonisation

7.2.1 SDO DHOs under review

With support of the AI Operations SG, EAD launched the review of the following DHOs:

- SDO DHO-5: [Airspace] Coded airspace identifier
- SDO DHO-18: [Airspace] Aerial sports and recreational activities
- SDO DHO-7: [Airspace] Free Route Airspace
- SDO DHO-17: [Designated points] VFR Reporting Points
- SDO DHO-13: [RSU] Types applicability and coding in combination with levels and working hours/timetable
- Newly developed ADO DHO-24: [Airspace] No Planning Zones

At the end of the year (ref. AI Operations SG-20), the review continued addressing the comments of the AI Operations SG experts. In 2019, none of the updated DHOs had yet reached maturity for the SSG approval.

7.3 PAMS

7.3.1 PAMS extension

As part of the PAMS service extension with ECAC+, EUROCONTROL contacted Iran, Tunisia, Russian Federation and Algeria to seek agreement to upload their AIPs into the EAD PAMS. No positive response was received in 2019.

7.3.2 ASECNA publications

The ASECNA AIP was available in PAMS for DUs. In 2019, EAD communicated to ASECNA an intention to uploading also ASECNA ATLAS that used to contain the ICAO approach visual/instrument landing charts. With effect from 05 December 2019 ASECNA issued a new AIP that included all charts formerly published in ATLAS Volume for which distributed had ceased. The new AIP including all charts is already available in PAMS.

7.4 INO

7.4.1 PERM NOTAM publication overview

The following table shows the PERM NOTAM trend for the period 1 January 2019 to 1 January 2020.

STATUS	ECAC	NON-ECAC	WW (excl. US area)	MIGRATED	NOTAMR
1 JAN 19	2879	4256	7135	2421	1275
1 FEB 19	2848	4401	7249	2519	1269
1 MAR 19	2899	4432	7331	2515	1265
1 APR 19	3134	4344	7478	2732	1277
1 MAY 19	3037	4421	7458	2684	1324
1 JUN 19	3055	4526	7581	2739	1329
1 JUL 19	3146	4554	7700	2735	1308
1 AUG 19	3209	4667	7876	2795	1303
1 SEP 19	3084	4473	7557	2706	1250
1 OCT 19	2987	4439	7426	2718	1264
1 NOV 19	2282	4281	6563	2059	1281
1 DEC 19	2339	4525	6864	2123	1295

Table 3 PERM NOTAM publication overview for the year 2019

The chart below shows the PERM NOTAM trend for the period of January 2017 to 1 April 2020.

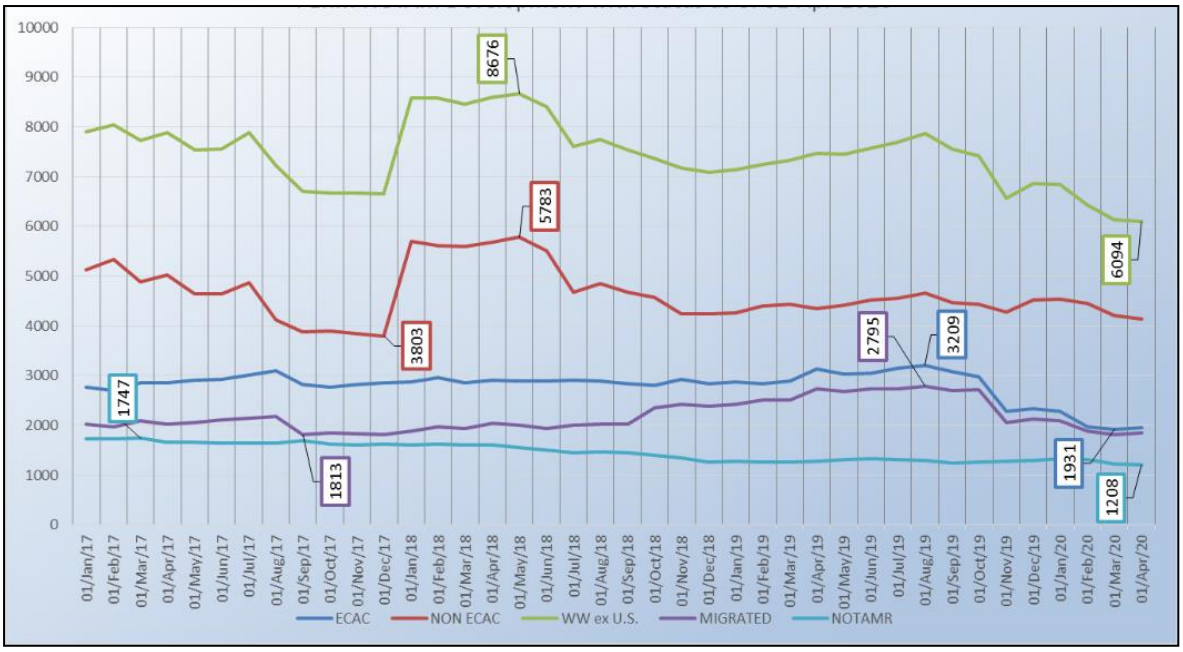


Figure 2 PERM NOTAM trend with status as at 1 April 2020

7.4.2 PERM NOTAM in the EAD

The following table shows the status of PERM NOTAM in EAD SDO and compliance with timelines.

PERM NOTAM	Yes	No	% (Yes/total)	Total
SDO-relevant	1689	1700	49.84%	3389
Loaded in SDO	870	819	51.51%	1689
Timeline	294	576	33.79%	870

Table 4 PERM NOTAM data load and timeline – Q1-Q4/2019

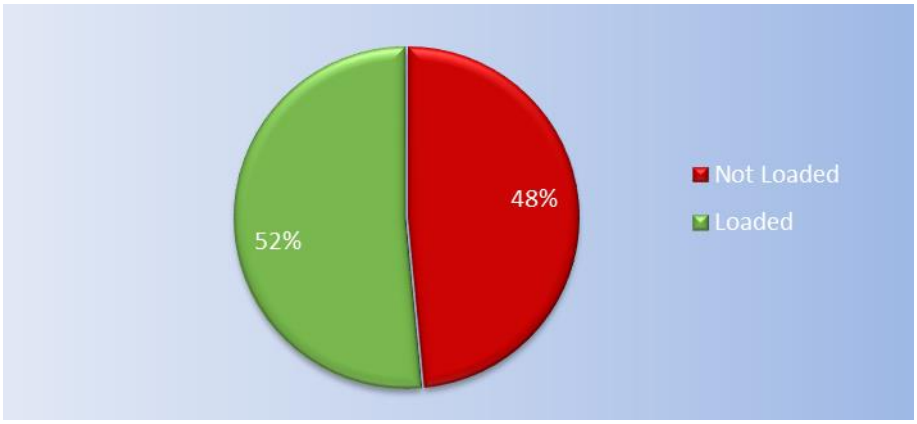


Figure 3 PERM NOTAM data status in SDO

7.4.3 EAD NOTAM statistics by ICAO Region

In 2019, North America (C, K and P areas) published 55.1% of all international NOTAMs, up from 52.88% in 2018.

Europe (B, E and L areas) together with North America published 75.96% of all international NOTAMs, up from 75.51% in 2018.

The table below shows the increase in the number of NOTAMs published between 2018 and 2019, area by area.

Area	Increase	Percentage
Europe (L+E+B)	1,829	+ 0.48%
Pacific (A+N+Y)	1,532	+ 3.15%
Asia (R+V+W+Z)	– 4,425	– 2.81%
Russia + Central Asia (U)	27,689	+ 30.43%
Africa (D+F+G+H)	1,648	+ 5.44
Mid-Asia (O)	912	+ 4.54%
North America (C+K+P)	121,583	+13.65%
South + Central America (M+S+T)	1,849	+ 2.86
TOTAL	**152,617**	**+ 9.06%**

Table 5 Increase in the number of NOTAMs published between 2018 and 2019, area by area

Note: Only international NOTAMs are included. MIL and national NOTAMs are excluded.

North America, mainly the United States, accounted for 79.67% of the worldwide increase in 2019, with Russia/Central Asia accounting for 18.14%, and the other regions, including Europe, altogether accounting for only 2.19%.

Additionally, owing to the limitation of the 4-digit NOTAM series numbers, 14 NOTAM series were reverted back to number 0001 (e.g. UUUU/Russia series K three times and KORD/Chicago O'Hare twice).

7.5 EAD operational documentation update

7.5.1 Outside of the EAD Release 12

The relevant EAD operational documentation has been reviewed and updated as prt of the annual review and to support the EAD service transition process to comply with Commission Implementing Regulation (EU) 2017/373 (applicable as from 2 January 2020) in preparation for the EASA audit at EUROCONTROL HQ (scheduled for 21-23 January 2020).

7.5.2 Part of the EAD Release 12

The EAD internal and external operational documentation (EAD Client Documents, Procedures Handbooks, Operational Orders, etc.) was updated to become applicable with EAD R12 deployment date. The EAD Client Operational Documentation has been uploaded in the EAD Knowledge Base. This status reflects the situation in 2019 with the ICAO and EASA applicability dates. Changes related to GRF in due course of 2020 are not addressed.

7.6 EAD Operational support for EAD Clients

The EAD Service Desk (SD) acts as the main interface between the Clients and the EAD to resolve operational and technical problems and to deliver specific support services on request.

The overview of the tickets handled by the EAD SD presented below covers the full 20192019. Tickets are classified by severity and type.

	Severity A	Severity B	Severity C	TOTAL
January	11	396	36	**443**
February	4	338	29	**371**
March	2	335	16	**353**
April	5	321	34	**360**
May	3	328	31	**362**
June	6	229	30	**265**
July	0	286	36	**322**
August	0	253	27	**280**
September	5	366	40	**411**
October	15	478	56	**549**
November	6	328	35	**369**
December	4	324	49	**377**

Table 6 EAD SD tickets by severity

	Problems reported	Requests reported	TOTAL
January	295	148	**443**
February	242	129	**371**

March	211	142	**353**
April	217	143	**360**
May	213	149	**362**
June	170	95	**265**
July	210	112	**322**
August	180	100	**280**
September	252	159	**411**
October	395	154	**549**
November	265	104	**369**
December	267	110	**377**

Table 7 EAD SD tickets by type

The overall highest number of tickets in 2019 was reported in October (this might be a side-effect of the EAD R12 deployment).

8 DATA CONSISTENCY REVIEWS (DCR) – DPs

8.1 Reporting period Q1-Q4 2019

This report presents the high-level overview of the results of the quarterly EAD Data Consistency Reviews for all migrated DPs, including MIL. The results for 2019 are compared with the previous three years where applicable.

Detailed results for each service will be provided to the AI Operations SG (AI-Operations-21).

8.2 Overall findings

8.2.1 SDO

The majority of errors reported are Severity 'C' and of the classification type 'Discrepancy'. Aerodromes/heliports, Routes and Procedures remain the top three entity groups for which the most errors are reported.

The following table shows the overall results in terms of the number of errors reported and the percentage of the volume of data reviewed by year.

	2016	2017	2018	2019				
				Q1	Q2	Q3	Q4	Total
Data reviewed	11014	10939	11676	4091	2908	3548	2868	13415
Number of errors	540	415	667	224	132	114	159	629
Percentage	4.9%	3.79%	5.71%	5.48%	4.54%	3.21%	5.54%	4.69%

Table 8 Overall results for errors reported for SDO by year

8.2.2 PAMS

The majority of errors reported are Severity 'C' and of the classification type 'Document loaded with wrong heading but still leading to correct document retrieval', which is the most common PAMS error. As regards the errors reported by category, 'Metadata' errors are the highest in number.

The following table shows the overall results on the amount of errors reported, non-solvable (NS) errors (Known Errors) in regards of data reviewed in 2016-2018 and Q1 – Q4/2019.

	2016	2017	2018	2019					
				Q1	Q2	Q3	Q4	Total	%
Number of publications/files reviewed	4309	4512	4949	1354	1141	1294	1249	5038	?
Number of errors reported (error Y)	334	359	215	72	77	60	89	298	5.92%
Number of Non-Solvable (NS) errors reported	120	184	429	129	73	121	13	336	6.67%
Total errors (Y + NS)	454	543	644	201	150	181	102	634	12.58%

Table 9 Overall results for errors reported for PAMS by year

In 2019, for eight AIRAC dates, 100% compliance was achieved at (-28), with the preceding 85% of compliance at (-42). This improvement has been acknowledged but there is further

scope for DPs to improve adherence to the PAMS timeline for AIRAC publication.

8.2.3 INO

The majority of reported errors are Severity 'C'. The error type 'Linkage' remains the most frequently reported error.

Errors in the 'Q-line' are the highest in number with respect to the total amount reported. The correctness of the Q-line is key for correct storage and retrieval of the information and its inclusion in the relevant PIB.

The following table shows the overall results in terms of errors reported and non-solvable (NS) errors (also referred to as Known Errors) for the data reviewed between 2016 and 2018 and between Q1 and Q4/2019.

	2016	2017	2018	2019					
				Q1	Q2	Q3	Q4	Total	%
Number of NOTAMs reviewed	23988	24479	25801	6784	7868	7329	6487	28468	
Number of errors reported (error Y)	1505	1724	1298	343	372	331	334	1380	4.85%
Number of NS reported	159	9	10	0	2	0	0	2	0.01%
Total errors (Y + NS)	**1664**	**1733**	**1308**	**343**	**374**	**331**	**334**	**1382**	**4.86%**

Table 10 Overall results for errors reported for INO by year

8.3 Clients' Known Error baseline

In accordance with the established process, the EAD Quality Team contacted the Data Providers affected to request an update on the status of Known Errors. Following receipt of the Data Providers' feedback, the 2020 baseline for Clients' Known Errors has been updated and has been applied with the effective date 1 April 2020 for Q1/2020 reviews.

The table shows the overview of Known Errors (Non-Solvable) errors and the variance since 2016.

Service	Number of Known Errors						% increase (+) or decrease (-) since 2016
	2016	2017	2018	2019 (Q1)	2019 (Q2-Q3)	2019 (Q4)	
SDO	2	9	7	8	8	8	+300%
PAMS	10	66	52	52	54	5	-50%
INO	3	7	4	4	4	2	-33%

Table 11 Overview of Known Errors for the period 2016 to 2019

8.4 Data Provider feedback

Client DCR reports are sent quarterly to the respective contact person(s) nominated by DPs. Use of the specific webmail (*quality@ead.eurocontrol.int)* ensures a unique communication channel for EAD quality problems.

Feedback has been received for around 21% of errors reported for PAMS, and 31% for SDO and INO.

Compared with 2018, this represents a 15% increase for PAMS and 10% for INO, while SDO observed a 3% decrease.

In general, communication with Data Providers is improving even though data corrections have not always been made and not all Data Providers regularly provide feedback.

9 EAD Change and Evolution Management

9.1 Release management

9.1.1 Release 12 and Patch Sets overview

The following represents an overview of the EAD Release 12 and the subsequent patch sets deployed to date:

- Release 12: deployed on October 15th, 2019
- Patch set 1: ready to be deployed, pending the regulatory approval
- Patch set Chart Production: planning still pending (depends on an SDD operational fix)
- Patch set ”SNOWTAM”: tentative deployment October 27th, 2020
- Patch set 2: tentative deployment December 1st, 2020
- EAD Operational Hotfix:
    - INO DP TID-F3OM
    - INO DP TID-F3OL & TID-F3OX
    - SDD “Transition”
    - FAA Data Loader (SDO TID-F3P6 / TID-F3P7)

9.1.2 Release 12 Patch Set “SNOWTAM”

The main Change Proposal for the format change is described in:
CHM-2865 ICAO PANS-AIM 10066, ICAO Annex 15 (16ed) - new SNOWTAM format.

The various aspects of the change are described in separate Change Proposals (comprising CHM-2865) and provide the specification in detail:

- CHM-3170 Compatibility handling
- CHM-3166 HMI
- CHM-3169 Database services
- CHM-3168 Validation services

The implementation of the new SNOWTAM format will not affect the B2B connections (i.e. ESI and AIMSL).

All problems with new SNOWTAM which were reported to SSG/29 and to AIM/SWIM Team-17 have been submitted to ICAO and included in “ICAO Guidance on the Issuance of SNOWTAM”.

9.1.2.1 Test activities – tentative planning

B2B

- The EAD Future Test System (FTS) will be available from the beginning of May 2020.

B2C (ECIT)

- Subsystem FAT: April-May 2020
    - Remote FAT testing with B2C (ECIT) clients – one week in May
- Assessment and Verification: June-July 2020
    - SAT testing with B2C (ECIT) clients – two weeks during July
- Deployment: October 2020 – dependent on acceptance by EASA

Note: *All exact dates and detailed information will be communicated in due time.*

9.1.2.2 Transition and activation of SNOWTAM 2020 format

The *NEW* format support will be activated by configuration in INO DP to decouple the deployment of the changes from the actual transition to the new format.
Before the planned activation date of 5 November 2020, the system will behave in the same way as for the *OLD* SNOWTAM handling and no changes will be visible in the HMI. After this activation date, the new format will be supported, and the HMI changes introduced by the related CHM requirements will become visible and active (e.g. the new SNOWTAM input form instead of the old form).
The INO-DP-related services will be stopped shortly before the activation date and restarted after activation.
During the activation, the following steps will be performed:

- Stop the INO-DP-related services (Forms, ESI, AIMSL) => During the activation, it will be not possible to create/process SNOWTAMs.
- Execute data changes to:
  - activate internal parameters for the NEW format;
  - remove the *OLD* SNOWTAM templates;
  - remove the *OLD* SNOWTAM rules;
  - invalidate *OLD* SNOWTAMs with observation time older than 8 hours;
  - convert stored *OLD* SNOWTAMs with observation time not older than 8 hours to the *CONVERTED* format.
- Start INO-DP-related services => Allow creation of SNOWTAMs in the *NEW* format and processing in the *NEW/CONVERTED* format.

9.1.3 Release 14

Due to circumstances that could not have been anticipated, the definition of the content (i.e. change proposals) for Release 14 is not yet finalised. Although the scope and the defined priorities of the previously designated Release 13 was carried over to a large extent into the scope of Release 14, there are also additional objectives that have to be taken into account, e.g. the ICAO Digital Data Sets, the necessary changes rendering EAD constituents compliant with the new regulatory framework, i.e. Implementing Regulation (EU) 2017/373, Implementing Regulation (EU) 2020/469, etc.

In the same time, the current Application Maintenance Contract (covering the EAD Releases) which is valid until 31st of May 2021 is in the process of being extended until 31st of May 2022, with the budget necessary to cover Release 14.

In case all the above-mentioned dependencies are addressed in due time, a draft candidate list of the Release 14 content is proposed to be provided as a Flimsy to the EAD SSG-31.

9.2 Transition to SDD

9.2.1 Regulatory Approval of the Transition Process

As part of the regulatory approval of Release 11, two limitations have been imposed based on the R11 Safety Case:

1. The use of the SDD operationally (limitation lifted since Release 12)
2. The transition to SDD – until the Transition Process has been safety assessed and approved by the Regulator

In order to lift the second limitation, the Transition Process has been submitted for the regulatory approval, together with the supporting documentation:

- Safety Assessment
- Safety Case
- Transition Management Plan
- Transition Plan Template
- EAD DOP operational procedures related to the transition to SDD
- EAD ITP technical procedures related to the transition to SDD

Although the safety assessment and the submission of the documentation has been done under the former regulatory framework (Implementing Regulations 1034/2011 and 1035/2011), the Regulator indicated that the approval process is regarded under the current framework, i.e. Implementing Regulation 2017/373.

To date, the approval is still pending.

9.2.2 Management of the transitions to SDD

At EAD SSG-30, an action has been recorded to propose a process for managing the coming transitions to SDD (ref. SSG30/09).

The proposal is going to be submitted to the EAD SSG-31 in the form of an action paper, taking into account also the feedback received from the Members of the SSG following the action SSG30/08 (“statement on their readiness and intention to transition to AIXM 5.1”).

9.2.3 Transitions to SDD – Infrastructure Support

As indicated during EAD SSG-29 (presentation under agenda item A5.4), EUROCONTROL proceeded to acquiring additional infrastructure support for the transition to SDD. As of May 2020, two additional transition systems (virtual machines) have been purchased and will be made available to facilitate the planning and the execution of parallel transitions.

At the beginning, one of these two additional systems will be allocated to the initiation of DOP’s transition to SDD for the EAD world-wide minimum static data set maintenance and to enable B2C transitions.

9.3 EAD evolution

9.3.1 ICAO Digital Data Sets

Besides the ongoing development of the ICAO new SNOWTAM provisions related to the runway condition reporting (R12 patch set “SNOWTAM”), EUROCONTROL is in the process of preparing the implementation of the ICAO Digital Data Sets (DDS) services in EAD.

Following the EAD SSG-30 recorded action (ref. SSG30/01), an action paper will be submitted to EAD SSG-31, presenting a concept of implementation of the DDS, covering the new services associated to the DDS and the identified potential impact on the current services, such as the world-wide static data set maintenance by DOP (in support of the NOTAM validation), data consistency reviews (DCR), etc.

9.3.2 EAD Regulatory Framework

As indicated in section 5.2.1 Compliance and Certification, EAIM is undertaking together with the internal and external Stakeholders a comprehensive analysis in order to prepare EAD for the compliance with the new regulatory framework (IR 2017/373 and IR 2020/469).

The potential changes and developments – required in order to be compliant with the respective regulations and to the associated acceptable means of compliance (AMC) – will need to be subsequently integrated in the EAD change management process.

9.3.3 Evolution of the EAD Graphical Capabilities

9.3.3.1 Graphical Visualisation (GV) of the AIXM 5.1 Data

The development of the similar SDO GVT functionalities in the context of the AIXM 5.1 is paramount for the transition of EADPro Clients to SDD (B2C) and for the support provided by DOP to operations involving SDD.

The graphical visualisation of the AIXM 5.1 data is foreseen to be developed and implemented in SDD progressively, starting with Release 14. In order to enhance the user experience and to make use of the modern technologies, the GV is foreseen to be integrated in the SDD HMI instead of being offered as a stand-alone tool (as it is currently the case in the context of SDO).

9.3.3.2 Enhancement of the Current EAD Graphical Functionalities

Along with the more comprehensive development of the graphical visualisation capabilities of the AIXM 5.1 data, additional enhancements are considered for the INO DP and INO DU View on Map functionalities.

The targeted enhancements include inter-alia: NOTAM circle, airspace centre point, user polygon, linkage buffer, etc. (for INO DP) and flight route visualization, PIB visualization, etc. (for INO DU).

Appendices

A. Abbreviations

Term	Description
ADQ	Aeronautical Data Quality
AFTN	Aeronautical Fixed Telecommunication Network
AIC	Aeronautical Information Circular
AICM	Aeronautical Information Concept Model
AIM	Aeronautical Information Management
AIP	Aeronautical Information Publication
AIRAC	Aeronautical Information Regulation and Control
AIS	Aeronautical Information Services
AIXM	Aeronautical Information Exchange Model
ANSP	Air Navigation Service Provider
ASHTAM	NOTAM reporting ash hazard
ATC	Air Traffic Control
ATFM	Air Traffic Flow Management
ATM	Air Traffic Management
BF	Briefing Facility
DOP	Data Operations Provider
DP	Data Provider
DU	Data User
EAD	European AIS Database
EADAP	EAD Annual Plan
EC	European Commission
ECAC	European Civil Aviation Conference
ECAC+	States surrounding ECAC Area
EASA	European Aviation Safety Agency
ECIT	EAD Client Interface
EAIM	European Aeronautical Information Management
ESI	EAD System Interface
FTE	Full Time Equivalent
ICAO	International Civil Aviation Organization
IFPUV	IFPS Validation system
INO	International NOTAM Operations

Term	Description
IT	Information Technologies
ITP	IT Provider
KPI	Key Performance Indicator
MET	Meteorological data
NOTAM	Notification to Airmen
NSA	National Supervisory Authority
NMD	Network Management Directorate
NS	Network Services
PAMS	Published AIP Management System
OPADD	Operating Procedures for AIS Dynamic Data
PERM NOTAM	Permanent NOTAM
PIB	Pre-flight Information Bulletin
SARPS	Standards and Recommended Practices
SDC	Static Data Completeness
SDD	Static and Dynamic Data
SDO	Static Data Operations
SDM	Static Data Management
SLS	Service Level Specifications
SNOWTAM	NOTAM reporting snow hazard
SP	Service Provider
SQSM	Safety & Quality Systems Management
SSG	Service Steering Group
SUP	Supplement
TAM	NOTAM, ASHTAM, SNOWTAM, BIRDTAM
TID	Test Item Discrepancy
TP	Training Provider
XML	Extensible Mark-up language

B. AI Operations SG Action Plan

No	ACTIONS and DELIVERABLES	INITIATED BY	GOVERNANCE	LINK TO WP item	DUE	STATUS NOV. 2019	Link to global/regional/local AIM developments
1	Update of AI Operations Work Programme in line with AIM/SWIM Team Work Programme	AI Operations ToR	AI Operations	All items	Yearly	Ed. 2.0	
2	Establishment of the Action Plan with identified deliverables linked to the Work Programme, and regular updating	AI Operations ToR	AI Operations	All items	Twice a year		
3	*Update "Digital NOTAM Event Specification – to v1.1" on the basis of feedback from early implementation by industry (Comsoft, Frequentis, Thales, IDS/SPA, OGC testbed, FAA).*	*AIM/SWIM Team-1*	*Digital NOTAM Event Specification FG*	*4.2*	*31 OCT 2012*	***Finalised*** *V 1.1 updated and made available end of 2012, to allow for stakeholder comments*	
4	*"Event Specification – v2.0" including FAA scenarios developed for airport NOTAMs which are not part of Increment 1*	*AIM/SWIM Team-1*	*Digital NOTAM Event Specification FG*	*4.2*	*30 MAY 2013*	***Finalised*** *DNES FG dissolved by AIM/SWIM Team-5*	• *EUROCONTROL/ FAA joint activity* • *ICAO AIS to AIM Roadmap Phase* 3
5	*Finalisation of change proposal to ICAO Doc 8400 on non-ICAO abbreviations to be presented to the AIM/SWIM Team, for submission to the EANPG*	*AI Operations-6*	*AI Operations*	*5.4*	*18 SEP 2012*	***Finalised*** *Endorsed by AIM/SWIM Team to be submitted to EANPG/COG-54*	

6	*Finalisation of change proposal to ICAO Annex 15 on NOTAM distribution, to be presented to the AIM/SWIM Team, for submission to the ~~EANPG~~ ICAO AIS-AIM Study Group (Action revised AIM/SWIM Team-4)*	*AI Operations-6 Fine-tuning of proposal in accordance with AIM/SWIM Team-4*	*AI Operations*	*5.4*	*~~18 SEP 2012~~ ~~24 SEP 2013~~ AIOPS-9 (28-27 NOV 2013)*	***Finalised*** *Fine-tuned change proposals endorsed by AIM/SWIM Team-6 and provided to ICAO AIS-AIMSG-9 as an SN*	• *ICAO ANC/12* • *ICAO SARPS Annex 15 Amdt 38 and NOTAM developments*
7	*Provide proposal for enhancement of ICAO Annex 15 on what information is to be (and not to be) published in NOTAMs, as input for AIS-AIMSG discussion on the increasing number of NOTAM publications, via the AIS/SWIM Team*	*AI Operations-6*	*AI Operations*	*1.4, 5.4*	*18 SEP 2012*	***Finalised*** *Endorsed by AIM/SWIM Team. to be submitted to ICAO AIS-AIMSG*	
8	*Analysis, performed by the Agency, of the EAD SDO data completeness process to facilitate the annotation of the ADQ non-compliant data items*	*AI Operations-3*	*AI Operations*	*2.2, 3.2*	*31 DEC 2012*	***Finalised*** *Analysis reported to AI Operations-8*	• *EC IR 73/2010 ADQ*
9	*Support for data replication for the SDO Data Completeness (SDC) tool*	*AI Operations-3*	*AI Operations*	*3.2*	*20 JUN 2012*	***Finalised***	
10	*Support for development of Digital NOTAM – EAD Concept of Operations and Technical Overview v 1.0*	*AI Operations-5*	*Digital NOTAM Event Specification FG*	*3.2*	*20 JUN 2012*	***Finalised***	
11	*Support for development of a series of templates for NOTAM item E).*	*AI Operations-5*	*Digital NOTAM Event Specification FG*	*3.2*	*30 NOV 2012*	***Finalised*** *Draft NOTAM template document sent to AI Operations for comments, as action from AI Operations-7*	

12	*Review of OPADD v.3.0 and update of the guidance material for a new version based on the terms of reference for the dedicated focus group*	*AI Operations-6* *Endorsed by AIM/SWIM Team-3, and EAD SSG-16*	*OPADD FG*	*5.2*	*Nov 2012-May 2014*	***Finalised*** *Final report and deliverables approved by the AIM/SWIM Team-7 and agreed before the group was dissolved*	• *ICAO Annex 15 Amdt 36+ 37, Doc 8126 Amdt 2 + 3, Dig. NOTAM Event Specification 1.1, GNSS NOTAM Concept, EC IR 73/2010 ADQ*
13	*Support in analysing publication considerations related to the introduction of FPL Buffer Zone (FBZ)*	*AIM/SWIM Team-4* *Outlined activity for AI Operations provided by correspondence*	*AI Operations*	*6.3, 8.1*	~~*(AIM/SWIM-Team-5)*~~ *AIM/SWIM Team-6*	***Finalised*** *AIOPS input provided/endorsed by AIM/SWIM Team-5. Charting further discussed by AIOPS-9. NOTAM problems transferred to OPADD FG*	• *European Route Network Improvement Plan (ERNIP)*
14	*Support for Terrain and Obstacle Working Group (TOD WG) in their work on drafting guidance material for the provision of eTOD information in the IAIP*	*AIM/SWIM Team-3* *Action initiated for AI Operations by correspondence, due date 15 Feb. 2013*	*AI Operations*	*2.2*	*End 2016*	***Finalised*** *AI Operations activity finalised, in accordance with the dissolution of the TOD WG end-2016*	• *ICAO Annex 15 SARPS – Terrain and obstacle data*

15	*Assess the required harmonisation of airspace information in State AIPs, ICAO AIS provisions, EAD SDO/AIP, and develop guidance material for harmonised provision of en-route/airspace information.*	*AIM/SWIM Team-5*	*AI Operations*	*2.2, 2.3*	*(End 2015)*	***Finalised*** *Updates identified for EAD AIP provisions/specs (ENR table content). Updates for ERNIP Part 1 (ENR 4.1/ 4.4 table format) developed. Clarification developed for publication of RNAV SID/STAR and IAP waypoints*	• *State AIPs, ICAO Annex 15, Doc 8126, EAD/AIP* • *European Route Network Improvement Plan (ERNIP)*
~~*16*~~	~~*Analyse existing monitor methods of the implementation progress of the ICAO AIS to AIM Roadmap and identify appropriate methods and best practice for subjects not yet covered by existing means.*~~ ~~*Support the AIM/SWIM Team in achieving a clear picture of the implementation progress across Europe, referenced in AIM/SWIM Team Work Programme*~~	~~*AIM/SWIM Team-5*~~	~~*AI Operations*~~	~~*1.1*~~	~~*End 2015*~~ *Decision by AIM/SWIM TEAM-8 to release this action from AI Operations*	~~*In progress, pending detailed outline of deliverables by the AIM/SWIM Team*~~	• ~~*ICAO Annex 15*~~ • ~~*ICAO AIS to AIM Roadmap*~~
17	Support with consultation and validation of new/revised draft SDO Data Harmonisation Objectives (DHO), in accordance with the development process	AI Operations-9	AI Operations	2.3	End 2020 *Due date prolonged AI Operations-20*	In progress	• ERNIP (FUA/FRA concepts, airspace design, utilisation and improvement requirements) • ICAO AIS provision development
18	*Support in reviewing the data consistency review processes and parameters (PAMS, SDO and INO)*	*AI Operations-11*	*AI Operations*	*2.1, 2.2*	*End 2016*	***Finalised*** *The EAD DCR Review_Final Report (v 2.0) was provided to AI Operations members on 14 December 2016.*	• *EC IR 73/2010 (ADQ)* • *EAD applicable documentation*

19	*Support in the development of pre-digital NOTAM templates for Increment 2 events.*	*AI Operations-11*	*AI Operations*	*4.2*	*End 2015*	***Finalised*** *Draft NOTAM templates for Incr. 2 reviewed by Sub-Group by Jan. 2016, in response to AI Operations-13 action*	• *Digital NOTAM Event Specification 2.0 (draft)*
20	*Analyse the requirements/problems found for harmonised FAB/FRA publication and data provision.*	*AIM/SWIM Team-7*	*AI Operations*	*2.3/6.3*	*End 2015*	***Finalised*** *AIM/SWIM Team-10 endorsed the AIOPS input on change proposals to ERNIP Part 1 on FRA AIP publication guidance to be forwarded to the Network Operations Team.*	• *ICAO Annex 15* • *ERNIP (FRA publication)*
21	Support the RNAV Approach Implementation Support Group (RAISG) with AIS expertise on harmonised AIP publication for RNP approach publication and on GNSS published information.	AIM/SWIM Team-9	AI Operations	5.1/6.3	End 2020 *Due date prolonged AI Operations-17 & 20*	In progress	• Relevant ICAO provisions • EAD SDO DHO • ERNIP
22	Support the finalisation of the Digital NOTAM Event Specification and the development of the AIXM Coding Specification.	AIM/SWIM Team-9	AIXM Coding Specifications Focus Group	4.2	Q22019 (Prolonged date approved by AAB/21) Final report at AI-Ops-20	***Finalised***	• Digital NOTAM Event Specification 2.0 • Pre-digital NOTAM templates
23	*Assess required content and format for new EUROCONTROL guidance document for AIP publication and dataset provision.*	*AIM/SWIM Team-10*	*AI Operations*	*6.3*	*End 2016*	***Finalised*** *Assessment of content/format of the new guidance document completed. Support for development of the guidance described in a dedicated activity (Item 24)*	• *Relevant ICAO AIS provisions* • *Relevant European guidelines and concepts, with reference to AIP publication*

24	*Support the development of EUROCONTROL guidelines for harmonised AIP publication and dataset provision.*	*AIM/SWIM Team-10*	*AI Operations*	*6.3*	*End 2017* *AI-Operations-17 concluded closure of this action by its due date.*	***Finalised*** *Content of the first edition of the guidelines document agreed at AI Operations-17, forwarded to the AIM/SWM Team and EAD SSG for consultation*	• *Relevant ICAO AIS provisions* • *Relevant European guidelines and concepts, with reference to AIP publication*
25	*Support the development of harmonised AIP publication format for times and timesheets, capturing all situations involving publication of time and complementing the proposed guidance in AI Operations-16 AP8, Appendix 1.*	*AI Operations-16*	*AI Operations*	*6.3*	*Q4 2018*	***Finalised*** *Harmonised guidelines for time expression in AIS publications was concluded at AI-Operations-19. The excluded topic "end of the day" was finalised in the AIXM Coding Spec. FG. A solution for digital coding was found there but does not help the paper presentation. In the absence of a consensus, the topic "end of the day" was closed at AI-Operations-20."* *Guidelines endorsed by the AIM/SWIM Team by correspondence*	• *AI Operations-16 AP8, Appendix 1* • *RAD definitions of terms* • *EAD SDO DHO-13* • *Relevant ICAO AIS provisions*
26	*Support the development of required harmonised AIP format and related data coding aspects for information on flight levels, aerodrome connections and time schedules associated with free route airspace (FRA) relevance on significant points.*	*AIM/SWIM Team-14*	*AI Operations*	*6.3*	*Q2 2019*	***Finalised*** *Harmonised publication guidelines finalised, resulting from AI-Operations-18 ACT/18 (1 Sep. 2018), and endorsed by AIM/SWIM Team-15*	• *ICAO Annex 15* • *EAD SDO* • *ERNIP Part 1 (FRA concept)*

27	*Support the analysis of required harmonised AIP publication format and related data coding aspects for no-planning zones (NPZ).*	*AIM/SWIM Team-14*	*AI Operations*	*6.3*	*Q2 2019*	***Finalised*** *Presented to AI-Operations-18 (June 2018)* *Harmonised publication guidelines finalised, resulting from AI-Operations-18 ACT/04 (16 AUG 2018), and endorsed by AIM/SWIM Team-15*	• *ICAO Annex 15* • *EAD SDO*
28	*Initiate a review of the OPADD in relation to the changes introduced by the new GRF RSC, on the basis of clarifications provided on questions/problems in Appendix A and guidance material provided by ICAO.*	AIM/SWIM Team-17	AI Operations	5.2/5.3	*Q1-2 2020*	To be initiated/In progress	• *ICAO GUIDANCE ON THE ISSUANCE OF SNOWTAMs* • *ICAO Annex 15* • *ICAO PANS-AIM*
30	*Reactivate/initiate support for adaptation of the EAD data harmonisation objective (DHO) for the new SDD sub-system and their further development, in relation with the AIXM coding guidelines for the ICAO data sets.*	AI-Operations-20	AI Operations	2/4.2	*Q2 2020-2021?*	To be initiated	• *EAD SDO DHO*
31	*Support creation of the AIXM coding guidelines for instrument flight procedure data sets by proposing that the AIM/SWIM Team establish a dedicated expert group.*	AI Operations-20	AI Operations	4.2	*Q2 2020-2021?*	To be initiated	• *ICAO PANS-AIM*

Note: For details on the initiative of an action item, see the relevant AI Operations Meetings on AI Operations library on EUROCONTROL OneSkyTeams.

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