

Information to facilitate the implementation of the ECCAIRS electronic data transfer file (E5X) in MS

INTRODUCTION

Regulation (EU) No 376/2014 mandates organisations to report in an ADREP taxonomy and ECCAIRS software compatible format. The Data Flow Working Group of the Network of Analysts has developed, together with the JRC, a standard interface to comply with this requirement specially designed for organisations reporting with a significant volume of occurrences and/or targeting organisations with extended IT technical capabilities, Top Reporting Organisations¹ (TRO) hereafter. This method of Data File Exchange is a standard interface and is the so called “E5X” file type.

Note that this IT-technical centric interface is one of the three software compatible methods that will be made available to report in order to comply with Regulation 376/2014. The other two methods, Online Web Reporting and Offline Document Reporting, will be documented and described in later notes, when those methods are made available.

Furthermore, the usage of one method, does not exclude the use of any of the other methods. While perhaps less desirable, any TRO or other stakeholder can use any combination of the three methods to report in order to be compliant with Regulation 376/2014.

This paper aims at informing MS on what the Data File Exchange method is and what the necessary considerations to implement it at National Level are. The note is accompanied by:

1. White Paper describing the format and explaining how to create the E5X package
2. RIT Schema providing the XSD structure to build a compliant and valid E5X file

¹ Top Reporting Organisation is a written convention to name those reporting organisations with a significant volume of reports and extended IT capabilities, which prefer to report to their competent authority through a databridge solution (data transfer file) directly generated from their own IT systems.

E5X FILE

E5X file is the zip of occurrence(s) data stored in XML(s) file(s) and any other file(s) attached to those occurrences. The content of XML file complies with the ECCAIRS XSD schema, which is built out of the ECCAIRS aviation taxonomy. The file can be opened in an ECCAIRS environment without any previous conversion. E5X files can be created from IT environments without requiring an ECCAIRS installation.

This file type is only used for transferring information from reporting organisations not using - ECCAIRS to an ECCAIRS environment, normally in the Competent Authority in the MS or in the Agency. E5X file cannot be (and is not intended to be) generated from an ECCAIRS environment.

The White Paper attached contains the technical description of the E5X file and the technical instructions to generate it.

REDUCED INTERFACE TAXONOMY (RIT)

The data in an E5X file is based on the so-called Reduced Interface Taxonomy (RIT). RIT is a subset of the ECCAIRS aviation taxonomy defined by the Network of Analysts (NoA). It contains the necessary attributes and values to, firstly, enable compliance with the regulatory requirements (e.g., use of ADREP taxonomy, reporting of mandatory data fields, etc.) and secondly, to convey additional information which may be relevant for enhancing safety analysis and trend monitoring.

In order to facilitate the implementation of the E5X format in TROs, the NoA has agreed with the ECCAIRS SCM to freeze the structure of the ECCAIRS taxonomy contained in the RIT for the next 3 years (till 2018). Changes in the structure of the RIT will be considered a major update and it will only be done every 3 year. Within this 3-year interval, the RIT could evolve but always ensuring backwards compatibility and only by having incremental changes in attributes or values of attributes (minor update). The RIT could be then updated, together with the ECCAIRS XSD package, every 6 months. Integration of the new XSD will be optional for organisations, but not for MS if any of their organisations has decided to go for the minor update. Major 3-year updates will be, in principle, mandatory for all organisations using the E5X file for reporting.

MINIMUM REQUIREMENTS FOR MS

In order to implement reporting using E5X, MS must upgrade their ECCAIRS environment to the ECCAIRS Common Framework (ECF) version after 5.4.1.16 and deploy the Aviation Extension version 4.0.0.3 or later (this extension brings the aviation taxonomy version 3.4.0.1). Note that previous versions of ECF will not be able to open E5X files.

TIPS TO INTERFACE WITH TRO

While promoting the reporting in E5X file as the reporting mean for TROs, MS should consider certain aspects.

Integration strategy

The integration of the ECCAIRS XSD could be done in two ways by the TROs:

1. Mapping out the TRO internal database taxonomy against ECCAIRS XSD to create the E5X file,
2. Integrating the ECCAIRS XSD as the taxonomy of the local database,
3. A combination of 1 and 2.

The strategy to implement the ECCAIRS XSD is left to each TRO; E5X files should not be affected by the strategy chosen.

Trim of RIT

The RIT is a subset of the ECCAIRS taxonomy. However, it is still a large taxonomy with more than 150 attributes and more than 120 value lists. TRO should agree with their competent authority on the most meaningful attributes, in addition to the mandatory ones, to be used in the practical implementation of the electronic data transfer file (E5X). The selection may differ depending on the type of TRO and on the domain or area where the TRO develops its operations or provides its services. In practical terms, the subset of the RIT should be a balance between the transfer of the data captured by the TRO being possibly used at National or European level to enhance safety analysis and trend monitoring, and the feasible implementation in each TRO.

Inclusion of attachments in E5X

E5X files allow attaching files to the occurrences contained in the file. However, this feature should be carefully implemented as it is not possible to limit the size of the attachments in the current setup. Transmission and processing of big size files will penalise the overall performance of the system. Therefore, MS should carefully assess the implementation of this possibility by their TROs.

Technical support to MS and TRO

The documentation package has been developed to ease the implementation of the electronic data transfer file in both the MS and the TRO.

In the preparation and implementation of this technical solution, there are two aspects clearly distinguished:

1. the technical support for the TRO to build a compliant E5X file (IT wise), and
2. the agreement with the competent authority on the content of the E5X file (aviation wise)

On the first aspect, the documentation and associated technical specifications target people with good knowledge of IT, normally seating in the IT departments of the TRO or in the aviation authority of the MS, and it should be sufficient to achieve its successful implementation. However, the JRC may provide additional technical advice to the TROs, though these requests will have to be streamlined through each competent authority (each MS or the Agency).

The second aspect covers the use of the RIT and the reporting flow from the TRO to the authority in the MS. This is for example, how many attributes of the RIT should be implemented, to what extent the taxonomy in those attributes should be used and how the reporting of follow-up and final reports will be supported by the E5X file. Within the boundaries of the Regulation 376/2014, each MS and the Agency will have to agree with their TROs on an acceptable implementation of the E5X. The NoA and EASA will provide the necessary advice to MS in order to achieve a minimum standard implementation in this regard.

USE OF TAXONOMY

In order to ensure a minimum quality of the data transferred from the TRO system to EASA, as required by Regulation 376/2014, it is necessary to define not only the attributes to be sent, but also the minimum content of those attributes and some basic rules to follow while filling them in.

The following rules should be followed in the use of the RIT taxonomy:

1. Each attribute in the RIT and each value in the value list contain their definition and own rules of use. Definitions and rules are included in the documentation items in the XSD scheme. TRO should use attributes and provide their values consistently with those definitions.
2. Should the information of any attribute be unknown or not relevant, the attribute should be transmitted blank or with the value "Unknown". However, "Unknown" should be only left to those cases where an effort to get the information will be done, and therefore the right value could be expected in a later report. This rule should also apply to those mandatory attributes listed in Annex I of the Regulation 376/2014.
3. In a value list with more than one level, always the lowest level in the tree should be envisaged. However, failing to find an appropriate value in that lowest level, immediate upper level should be checked. This escalation should be iterated until the most adequate value, though more generic, is found.
4. Some attributes may contain more than one value, hence the most complete information should be provided.
5. Some attributes allow code value and free text. In this case, free text should be used to complete the coded value where the coded value is not entirely describing the intended information.
6. The free text fields should not contain personal information like persons names. In any case, TRO may agree with their competent authority deviations from these basic rules.