



Introduction to ECCAIRS 2 (E2)

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1



.. The software LOGOs...



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History of ECCAIRS and drivers for the creation of E2

- The previous ECCAIRS (referred to as E1) had been in existence for over 3 decades
- E1 was developed and supported by EU DG-JRC
 - The IT Technology used was no longer “current” and Architecture was decentral through “PC & Server installations”
 - Every change or update to software and/or Taxonomies required deployment to each and every PC and Server (est. 1000+ in EU MS and many 1000s more outside of EU)
- An EU MS stakeholder survey in 2018 revealed the “pain points” of E1
 - High cost of maintenance for local installations in MS
 - Taxonomy values (e.g. Aircraft types, Aerodromes,..) updated only yearly at best
 - Benefits of system changes/fixes were only visible when all MS have upgraded (1yr+)
 - Slow user experience
 - Not user-friendly interfaces, certainly not up-to-par to nowadays modern internet look&feel systems
- After assessment, it was decided that EASA would not “take it over as-is” from DG-JRC, but would **redevelop** the system over 2019-2020, naming it ECCAIRS 2, or E2 in short
 - E1 is no longer available for new installations and is also no longer under maintenance or support for running instances since 2021. So today it is considered as a non-supported Legacy software



3

3

How is E2 different from E1 ?

- E2 is developed and supported fully by EASA
 - The **IT Technology** used is “top notch” benefiting from **BigData** technologies used by eg Social Media systems
 - **Central** Architecture in a **secured, private EU cloud environment**, managed by EASA
 - All measures to **counter Cybersecurity** attacks are in place (regular Penetration “white hacker” testing done !)
 - **No more decentral** “PC & Server installations” required
 - Only requires an **Internet Browser (any)** and runs on Windows, Apple, smartphones, tablets,...
 - **Faster** response times for larger data processing request
 - **Secure**, both the access with Multi-Factor-Authentication and E2 also has a full encrypted database
 - **User-friendly user interfaces**, fully in line with todays websolutions expectations
 - All updates, fixes, enhancements for both the Software and the Taxonomy values **immediately available**
 - **Central support** via built-in “helpdesk” to report issues, ask questions, propose improvements, training material, ...



4

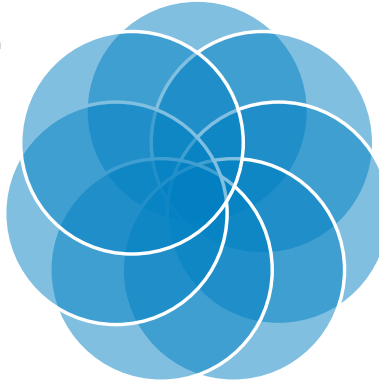
4

ECCAIRS 2, a quick Executive Summary of how it brings value over E1

Fully web-based central architecture: No more local PC & Server installations and frequent updates of software versions and Taxonomy upgrades. No local IT Infrastructure cost nor IT support cost.

Secured by design, with an increased level of security through the setup of Multi Factor Authentication (eg userid/pwd + code sent via email/text msg phone)

Better experience for external reporting organisations: registration on the E2-portal gives insight on what was previously reported, M2M (machine-to-machine) reporting without human intervention on either sides (API)



Better Performance, leveraging on the most modern technologies used in BigData IT.

Increased overall User Experience, today's modern User Interface, usage more intuitive and requiring less training. Easier data retrieval, eg no more SQL like coding to query the database. Notifications on changes to specific data. Central taxonomy changes, enhanced coding assistance via central repositories, eg European registration db.

Powerful technical interfaces (API's) allow to auto-connect to local systems (SMS, Analytical tools,...)

High level of customisation to adapt to Authority's internal processes (roles, views, automations,...). Even fully translatable if local effort made.



5

5



ECCAIRS 2 in conjunction with ICAO Annex 13

“new reporting tool available”

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6

EU-EASA and ICAO States cooperation for the ECCAIRS 2 Programme

- The EU has signed a Working Arrangement (WA) with ICAO on ECCAIRS
- This WA revision sets out that ICAO will use E2 for facilitating the collection of A13 reports globally
- To achieve that, EASA is working with ICAO so that they have their own "E2 database" as part of the global ECCAIRS system, set up.
- ICAO will manage the creation and management of the States which desire to use the E2 system of ICAO for reporting their A13 reports on (serious) incidents and accidents.
- Once the State created, every State will get its own credentials providing them access to the ICAO A13 E2 system to report in to
- What does that bring to those onboarded States ?
 - A "State specific environment" to which only the State has access, allowing the State to :
 - Create and submit A13 reports
 - either "new" reports or
 - Updating/enhancing already previously submitted A13 reports
 - The State will have the full overview and control of all (their own) historical and on-going A13 reports submitted to ICAO
 - Boarding trajectory for a State to voluntary join "ICAO A13 E2 system"
 - Procure from ICAO their iPack "ECCAIRS 2 Annex 13" as soon as available. **This is a one-off cost of \$20.000**
 - This iPack is being designed and created by ICAO with full support and input of EASA
 - The services which are part of the iPack A13 will be delivered "virtually" by ICAO
 - Target of ICAO is to have the iPack A13 available by end Q2 2024
 - The iPack will contain the setup and configuration and (admin)training of the ICAO "State's specific environment" of A13 reports
 - Beyond the one-off cost of the iPack A13, there is no further "operating cost" for the State to continue to use their A13 "State specific environment", nor any supplementary engagement from the State side (wrt the tool, not regarding the State's A13 reporting obligations)



7

7

The ICAO A13 E2 system, how does it look like ? *landing page*

The screenshot displays the ECCAIRS 2 - SRIS 2 landing page for a user named 'ICAO_State_User'. The page features a navigation bar with 'HOME', 'Report an Occurrence', 'Taxonomy', and 'Administration'. Below the navigation bar, there are four circular statistics: 'Draft User Reports', 'Sent User Reports', 'Sent Organisation Reports', and 'All Organisation Reports'. The 'Reports' section is active, showing tabs for 'All', 'Draft', and 'Sent'. There are buttons for 'UPLOAD PDF/ESX', 'ESX RESULTS', and 'ESX VALIDATION RESULTS'. A table with columns for 'Creation Date', 'OR Initial Date', 'E2ID', 'Organisation', 'E2 Status', 'Report Identification', and 'UTC Dat' is shown, but it contains no records. The footer shows '50 items per page' and '0 - 0 of 0 items'.



8

8

The ICAO A13 E2 system, how does it look like ? *selection form*

9

The ICAO A13 E2 system, how does it look like ? *fill in online form*

10

The ICAO A13 E2 system, how does it look like ? *download & fill in PDF form*

ECCAIRS 2 OCCURRENCE REPORTING FORM
<http://www.aviationreporting.eu>
ADREP PRELIMINARY

OCCURRENCE
 PLEASE READ THIS

OCCURRENCE

Headline (407) _____

Occurrence class (427) _____

Occurrence category (430) _____

Local date (433) _____ YYYYMMDD

UTC date (477) _____ YYYYMMDD

Local time (487) _____ HH:mm

UTC time (478) _____ HH:mm

State/area of occ (456) _____

Level1 _____ Level2 _____

Location name (440) _____

Latitude of occ (420) _____

Legend:
 ADRM: Aerodrome
 AMAN: Abrupt manoeuvre
 ARC: Abnormal runway contact
 ATM: ATMCNS
 BIRD: Birdstrike
 CABIN: Cabin safety events
 CFIT: Controlled flight into or toward terrain





ECCAIRS 2 in conjunction with ICAO Annex 19 Full SMS “occurrence reporting”

“going beyond just reporting”

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EU-EASA and ICAO States cooperation for the ECCAIRS 2 Programme

- The EU has signed a Working Arrangement (WA) with ICAO on ECCAIRS
- The WA revision focusses as well on the potential use of E2 for ICAO States in support of A19 - SMS
- ICAO endorses that ICAO States can voluntary request their own E2 instance/database
 - State will then becoming part of the global, central E2 cloud system of EASA
 - Similar like all EU-EASA States (32) have
 - E2 solutions cannot be installed locally at/on ICAO State IT systems, the State has to onboard the central EASA E2 system
- Boarding trajectory:
 - Procure an ICAO iPack "ECCAIRS 2 Annex 19" when available. **This is a one-off cost. Price tbd.**
 - This iPack is being designed and created by ICAO with full support and input of EASA
 - Target of ICAO is to have it available by end of Q3 2024
 - The services which are part of the iPack A19 will be delivered "on-site/F2F" by either ICAO or EASA
 - This iPack will contain the setup and configuration and admin-training of the ICAO State's own E2 instance
- In parallel and **in addition** to the procurement and delivery of this iPack, the ICAO State will have to sign a Service Agreement (SA) with EASA
 - This is a contract between the ICAO State and EASA bilaterally. ICAO is not part of this SA.
 - It enumerates the E2 services and support levels provided by EASA for the State's "full usage" of their own E2 State database
 - For those services and support, the State will commit to pay a yearly E2 usage fee to EASA. **This is a yearly recurrent cost.**
 - Height of the fee will be driven by the assessed size and usage of E2 by the ICAO State (number of Occurrence Reports, number of Industry Reporters, number of State Authority users)
 - Fee is based on cost elements for the E2 EU Cloud and the level of support services driven by the State's "usage profile" as per above



13

13

What does E2 bring for the Authorities and for the Industry ?

- *Workforce optimisation*
 - Full integration of the reporting portal (no more reports via email that then need to be manually uploaded in ECCAIRS)
 - Integrated function which allow automation of the processing of the full workflow
 - End-to-end, from incoming reports to consolidated (if multiple reporters report on the same event) Occurrences
 - automatic processing of incoming "follow-up reports" with flagging of data conflicts which require authority action
 - set up of so called "batch operations" which can run "all the time" unattended to automate certain (sub)processes
 - Advanced customisation of Roles allowing reports to be automatically dispatched to a specific group of experts, in alignment with State business processes and organisation
 - Automatic pre-filling of data through reference databases, eg typing in an a/c registration and the type, engines, mtow, etc gets filled
 - Aerodrome, Aircraft, Aircraft registration database (collaborative approach)
- *Customisation to fit State needs*
 - Custom Fields at Authority level are possible
 - Local Views, screens, translations to fit Authority and their Reporters
 - Own State Webforms possible on the reporting portal (in local language) allowing dismissal of State own reporting portal systems
 - Real-time connection of E2 Safety Reports to State's own analytical BI tools through technical interfaces (APIs) possible
- *Quality enhancement "at the source": better data quality and less duplicate data*
 - Integration for Similar Occurrence Check (avoid duplicates)
 - State level customizable Quality Rules triggered at different steps of the occurrence lifecycle
 - Setup of relations between attribute values to auto-check data consistencies (eg cannot have 4pax injured if total flight pax is 2)
- *Many other benefits such as ..*
 - ... internal E2 system notifications & workflows, automated operations, State Authorities information exchange/sharing, query builder, search engine,...



14

14

What does E2 bring for the Authorities and for the Industry ?

→ Stakeholder relation optimisation

- States should incentivise their organisations to get a “registered access” which brings a zone allocated to them (versus anonymous filling/sending reports)
- Authority can create custom layouts for their industry reporters (groups or individual) if required
- Organisation gets full access to all their safety reports as submitted to their competent authority
- Organisation can update previously submitted safety reports directly in their zone
- Like explained on previous slide, the authority can set up automatic processing of these “follow up reports”/updates

→ Stakeholder automation

- Targeted to organisations which have an SMS IT system (Vendor software or bespoke IT development)
- States can allow an organisation to submit their safety reports (initial and follow-ups) via automated methods
 - Using M2M (machine-to-machine) connections from the organisations servers to the E2 server of their State authority
 - Subset of the same APIs which States can use to connect their own E2 to their local systems

→ Enhanced in-tool's information exchange via the “registered access zones”

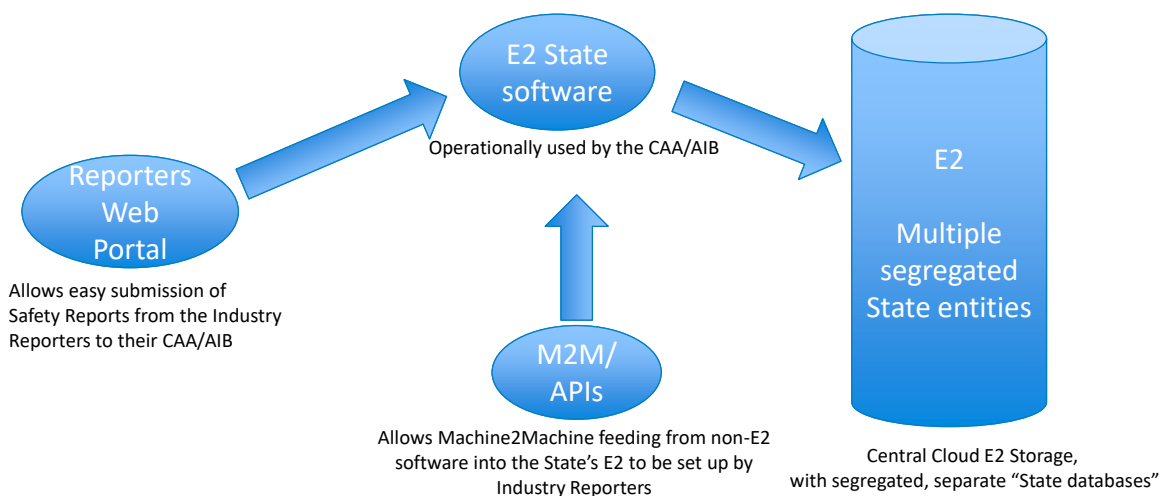
- Certain info that the authority adds to the Occurrences they review and process, based on the received Safety reports from the Reporters, can be fed back to the Reporters as some kind of “feedback loop”
- Thus, the often heard comment from the Industry “we submit to a black-box without feedback” could potentially be overcome



15

15

ECCAIRS 2 : the basic flow for non-EU States highlighted



16

16

Current status of E2

- The MVP (Minimum Viable Product) version was released to the EASA Member States back in 2021
- Almost all EASA MS (31 + EASA) have already fully migrated
 - 1 more remaining, in planning for this year (2024)
 - This State is “technically ready”, yet awaiting finalisation of local IT projects to ensure full integration of E2 in their IT landscape
- Still more E2 functionality is continuously being developed
 - Agile IT development with regular “upgrades” of the in-place E2 solutions is being done (from so-called “backlog”)
 - The MVP version was 2.0, the 2.35 version was just released in April 2024
 - Target date for E2 “full product” is end of 2024
 - Further “smaller” evolution of E2 will continue as of 2025
- But what does this now mean for a non-EASA/ICAO State Authority ?
 - Next slides provide the most frequently asked Questions and Answers around the E2 programme status

E2 Question and Answer section (1/7)

Why is there now an ECCAIRS 2 ?

- **The old ECCAIRS was developed and supported by the EU DG-JRC, who decided to cease to develop and support it as of December 2020 . We refer to this version as E1**

Does my E1 locally installed version no longer work then ?

- **Technically speaking it will continue to work. But it is no longer maintained nor supported, so without warranty. If a technical issue arises, it will not be mitigated**

Can I still ask somebody for support with my E1 local installation ?

- **No, neither the DG-JRC, nor EASA are providing any support on E1**

E2 Question and Answer section (2/7)

How is E2 different from E1 ?

- E2 no longer is a “client-server” technology with local installations on PC-workstations and/or local Servers
- E2 is a central, global, private-cloud (EU State) hosted web-based solution technology without any need for local PC/Server installations
- The access is done via any Internet browser client

What are the main features of E2 ?

- You can expect that all the core functions of E1 have been reproduced and some have even been extended, as well as many new features which have been added

E2 Question and Answer section (3/7)

But I still can download and install E2 on my own IT infrastructure right ?

- Unfortunately, you can NOT
- The IT central cloud technology used, does not allow it to run it locally on a PC-Workstation, nor on a local Server

So if I want to start using E2, I have to use this central system ?

- Yes that is correct, that is the only option to use E2

E2 Question and Answer section (4/7)

Who runs this central E2 system ?

- EASA is running, maintaining, and supporting the central E2 system, initially primarily for the EASA States
- EASA & ICAO will open up E2 for non-EASA States in 2024 (in parallel to the EASA MS using it)

So EASA can see all my data when I'm part of the E2 central system ?

- No. Separate "logical databases" will be created inside the E2 system and the "keys" will be given to the State/Organisation "security administrator" who can manage the database completely independently
- EASA does not have access to any data of your State/Organisation, unless you allow them so (opt-in) for support request

Can I migrate my data in to E2 ?

- If you currently run a recent version of E1, then yes: we have data conversion routines
- If you run any other Safety Management System (SMS) software, then unfortunately this is not possible, unless you write your own custom migration IT routine for which EASA can provide specs



E2 Question and Answer section (5/7)

When can I join E2 then ?

- E2 will be made available to non-EASA States/Organisation in the second half of 2024

How can I apply ?

- At this time, no formal application process has been set up
- A Working Arrangement was signed between the European Commission and ICAO HQ in 2023, whereafter E2 deployment became possible through ICAO or EASA
- EASA & ICAO are engaging with the ICAO Regional Offices to discuss possible regional approaches for the application and onboarding of E2 in ICAO States
- States/Regions covered by EU/EASA Technical Cooperation projects could potentially be covered directly by EASA, but in line with methods/tools/services delivered by ICAO for their own deployments



E2 Question and Answer section (6/7)

Is E2 free of charge ?

- A State/Organisation can voluntary request to join the E2 programme and a Service Agreement directly with EASA will have to be signed
- There will be a yearly fee associated with the usage of E2 for the State/Organisation.
- The fee will be mainly driven by the Cloud cost (storage, computing, security) and Operating and Support cost

Which E2 services will I get for this fee ?

- It will allow you to run your own ECCAIRS State instance within the central E2 system
- It will give you access to an information and knowledge platform of E2 with all other E2 State users
- It will allow you to get support from an E2 support team (typically ICAO RO)
- It will allow you to benefit from the future evolution of the E2 solution

Can I request new features to be developed in E2 ?

- Yes, as a subscribed State/Organisation, you will be able to propose improvements, new feature changes and of course reports bugs which will be mitigated by the central support team
- All requests will be regularly reviewed and prioritised



E2 Question and Answer section (7/7)

There are still plenty of elements around E2 which are not yet clear or are missing details (e.g. EASA fees). When will all of this be clarified ?

- In Q2-2024, expect ICAO, with support of EASA, to make available the full information package, including application methods, Service Agreement (SA) with fee details, onboarding process description, etc. The announcement will contain details on an “iPack ECCAIRS” to be procured by the State/Organisation focussing on the onboarding.
- There will be 2 modes, each at different speeds:
 - Avail from ICAO as of Q3 : “iPack ECCAIRS Annex 13”. Will allow the State to report their Annex 13 reports directly to ICAO. Does not entail the setup, nor any SA/fee requirement for the State, nor does it provide a “full ECCAIRS database” to the State. Only visibility of their own submitted Annex 13 reports
 - Avail from ICAO by end Q4 : “iPack ECCAIRS Annex 19”. Will allow the State to get a “full ECCAIRS database” similar to E1, where they can do ‘everything’, i.e. the setup and functionalities depicted earlier in this presentation. This will necessitate the additional signature of an SA with EASA with a commitment of paying a yearly E2 subscription fee



ECCAIRS 2 in conjunction with ICAO Annex 19 Full SMS “occurrence reporting”

“deployment at State or Regional level ?”

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25

Possible State E2 deployment methods

- There are 2 approaches in setting up “full E2” for A19 SMS reporting
 - *Each State sets up its own, separate E2 instance/database*
 - *A number of States (eg RSOO or RAIO) group and set up one single, common E2 instance/database*
- There are pro’s and con’s for each of the approaches
- There is no “good” or “bad” in either, it is matter of strategy and budget, see next slides

26

Strategical & budgetary choices will drive the decision

Each State sets up its own, separate E2 instance/database

- Advantages:
 - The State can set up their own customised E2 environment with its own Users, Reporting Industry Forms, Processes and Automations.
 - The State solely and independently manages its own E2 database, its own users and their own State Industry Reporters
 - The State manages its own “first line support” helpdesk for their State Industry Reporters
 - The State gets direct access to the EASA “second line support” central E2 helpdesk (a service part of the SA)
 - No other State has access to their Occurrences
- Disadvantages/ Consequences:
 - No other State has access to their Occurrences , yet sharing with other E2 States is possible within E2 software
 - The State has to procure its own ICAO iPack A19 onboarding package yet will get trained directly on the setup and usage of their State E2 environment
 - The State has to sign its own SA with EASA and pay the yearly subscription fee



27

27

Strategical & budgetary choices will drive the decision

A number of States group and set up one single, common E2 instance/database

- Advantages:
 - The Regional setup has to procure one ICAO iPack A19 onboarding package yet only the regional level will get trained on the setup and usage of their State E2 environment, not the local coordinators (see below)
 - The Regional Organisation has to sign a SA with EASA and pay one yearly subscription fee, which will be higher than the individual State fee, yet cheaper than the sum of the fees of the States, if they were to get their own database
- Disadvantages / Consequences:
 - A Regional support team has to be put in place to manage all of the participating State users and support all of the participating States Industry Reporters
 - All Reporting Industry Forms, Processes and Automations have to be aligned and set up at the “regional level”. No customisation at participating State level possible (can also be considered an Advantage harmonising this across the region)
 - The Regional support team will act as the single “first line support” helpdesk for all of their State Industry Reporters, as well as for all the Users from the participating States
 - Each participating State will have to nominate a local coordinator representing their State Users and State Industry Reporters ,and this local coordinator will liaise with the Regional support team only
 - So the participating State local coordinator needs to first contact the Regional support team which in turn while acting as the Region’s “first line support” has direct access to the EASA “second line support” central E2 helpdesk (a service being part of the SA)
 - Selecting this regional approach will also have a collateral influence on the State’s eventual adoption of using E2 ICAO A13 reporting
 - In E2, a state is either “known” individually or via a Regional setup
 - So cannot combine being an “individual State” for A13 and then being “part of a regional approach” for A19 later



28

28



Thank you for your attention & interest !
... any questions ? ...

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