

# Monitoring, Reporting and Verification Implementation – States' Reporting through the CORSIA Central Registry

By ICAO Secretariat

## Introduction

The successful implementation of the Carbon Offsetting and Reduction Scheme for International Aviation (CORSA) requires the establishment of a robust and transparent Monitoring, Reporting and Verification (MRV) system to track annual CO<sub>2</sub> emissions from international aviation. This information is used to determine offsetting requirements in accordance with the provisions of Assembly Resolution A40-19.

To achieve this, in 2018, the ICAO Council adopted the First Edition of Annex 16, Volume IV, which contains Standards and Recommended Practices (SARPs) that address the implementation of CORSA. The CORSA SARPs became applicable on 1 January 2019 for all States with aeroplane operators with international flights.

## The CORSIA Central Registry (CCR)

The CORSIA Central Registry (CCR) is one of the five Implementation Elements of the scheme, as identified by the ICAO Council at the time of the adoption of Annex 16, Volume IV.<sup>1</sup> The CCR facilitates the reporting of CORSA-related information and data from States to ICAO, while enabling ICAO to consolidate this information and make it publicly available on the ICAO website.<sup>2</sup>

The CCR is administered by the ICAO Secretariat and has been implemented as a secure web interface (web platform) supported by a database and a workflow engine. It comprises of the following four components (see Figure 1):

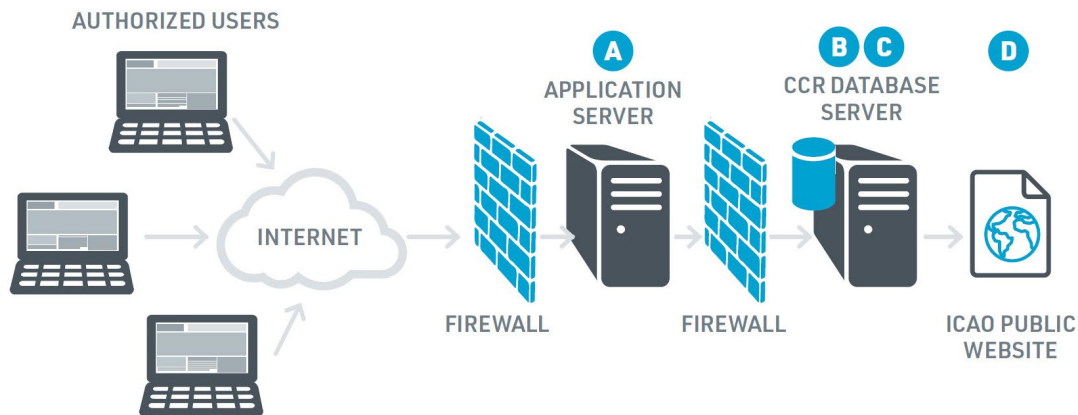
- A. Web application with pre-defined forms and automated checks;
- B. Data transfer and storage;
- C. Administrative console to perform internal checks and manage data and users;
- D. ICAO website for the publication of information.

Each State has one account on the CCR. Access to this account is granted to authorized users, who are nominated by each State. Each CCR user has unique login details (username and password) and given access to certain functions of the CCR based on a pre-defined list of permissions (see Table 1). It is important to note that, for the purposes of the CCR, only one CCR user per State is assigned the role of the CORSA Focal Point (CFP), and the CFP is the only CCR user who can initiate the reporting process and submit data to ICAO. More than one State User can be nominated by a State.

<sup>1</sup> More information on the CORSA Implementation Elements can be found in the ICAO CORSA website (<https://www.icao.int/environmental-protection/CORSA/Pages/implementation-elements.aspx>)

<sup>2</sup> <https://www.icao.int/corsia>

## CORSA Central Registry



**FIGURE 1:** Main Components of the CCR

**TABLE 1:** Examples of Permissions to Main CCR Functions for each User Group

| User Group        | Main Functions for CCR Users |                        |                     |
|-------------------|------------------------------|------------------------|---------------------|
|                   | Start the Reporting Process  | Add, Edit, Delete Data | Submit Data to ICAO |
| CORSA Focal Point | Yes                          | Yes                    | Yes                 |
| State User        | No                           | Yes                    | No                  |

All CCR users can provide new information and/or update previously submitted information, while their actions are time-stamped and recorded (including the electronic signature of the user who initiated an action) to ensure traceability and data integrity. If previously submitted information needs to be modified, the previous version of the data is not deleted, but is archived for future reference.

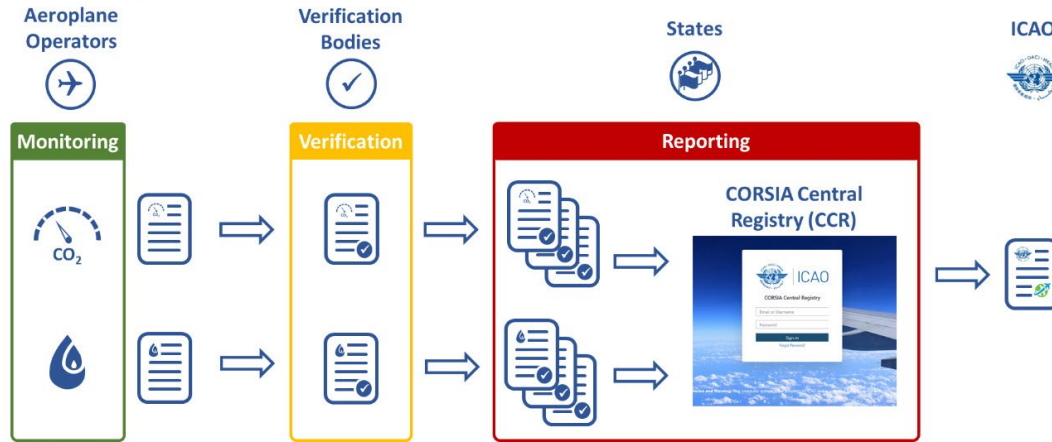
Information and data are uploaded on the CCR and submitted to ICAO using pre-defined online forms. These forms facilitate entering information incorporating, where possible, dropdown lists (for example, list of ICAO States, attribution options, feedstock used for CORSA eligible fuels etc.) to minimize typing errors. Business rules have been created to check information and data before submitting to ICAO; for example, numerical data cannot contain letters or symbols, emissions data cannot be negative numbers.

## The CORSA MRV System

Under CORSA, aeroplane operators with international flights are subject to MRV requirements. As of 1 January 2019, operators are required to monitor their annual CO<sub>2</sub> emissions from international flights, have them verified through a third-party verification process, and submit them to the States to which they are attributed (as depicted in Figure 2). States collect emissions data from all their operators and submit consolidated information to ICAO through the CCR.

Starting with the reporting year 2021, States with operators that wish to claim CO<sub>2</sub> emissions reductions from the use of CORSA eligible fuels are required to submit information and data on such fuels in accordance with the provisions of Appendix 5 to Annex 16, Volume IV. Information on CORSA eligible fuels must also be verified prior to its submission to the State of attribution.

In addition to CO<sub>2</sub> emissions, States are required to submit to ICAO information on aeroplane operators attributed to them, and on verification bodies accredited in them. The lists of aeroplane operators and verification bodies as submitted by States can be found in the latest editions of the ICAO document “CORSA Aeroplane Operator to State Attributions” and in Part I of the ICAO document “CORSA Central Registry (CCR): Information and Data for Transparency”, respectively (more details of ICAO CORSA documents can be found later in this article).



**FIGURE 2:** Sequence of actions under the CORSIA Monitoring, Reporting and Verification (MRV) system for CO<sub>2</sub> emissions and CORSIA eligible fuels

**TABLE 2:** Summary of CORSIA-relevant Information to be Reported by States to ICAO (in italics the deadlines for reporting in accordance with Appendix 1 to Annex 16, Volume IV)

| Information type          | Baseline      |               | Pilot Phase   |               |               | First Phase   |               |               |
|---------------------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|---------------|
|                           | 2019          | 2020          | 2021          | 2022          | 2023          | 2024          | 2025          | 2026          |
| Aeroplane Operators       | <i>30 Apr</i> | <i>30 Nov</i> | <i>30 Nov</i> | <i>30 Nov</i> | <i>30 Nov</i> | <i>30 Nov</i> | <i>30 Nov</i> | <i>30 Nov</i> |
| Verification Bodies       | <i>30 Apr</i> | <i>30 Nov</i> | <i>30 Nov</i> | <i>30 Nov</i> | <i>30 Nov</i> | <i>30 Nov</i> | <i>30 Nov</i> | <i>30 Nov</i> |
| CO <sub>2</sub> Emissions |               | <i>31 Aug</i> | <i>31 Aug</i> | <i>31 Jul</i> | <i>31 Jul</i> | <i>31 Jul</i> | <i>31 Jul</i> | <i>31 Jul</i> |
| CORSIA Eligible Fuels*    |               |               |               | <i>31 Jul</i> | <i>31 Jul</i> | <i>31 Jul</i> | <i>31 Jul</i> | <i>31 Jul</i> |
| Cancelled Emissions Units |               |               |               |               |               |               | <i>31 Jul</i> |               |

\*Information can be reported annually or once at the end of each three-year compliance cycle depending on the frequency of reporting by the operator(s) attributed to the State.

In accordance with Appendix 1 to Annex 16, Volume IV, there are different deadlines for States to submit CORSIA-specific information and data for a particular year (see Table 2). For example, for year 2021, information and data on aeroplane operators and verification bodies were due by 30 November 2021, while CO<sub>2</sub> emissions and data on CORSIA eligible fuels are to be submitted by 31 July 2022, and information on cancelled emissions units for the pilot phase (2021 to 2023) are due by 31 July 2025.

### Publishing CCR-related ICAO CORSIA Documents

The information and data uploaded in the CCR are used to produce five ICAO CORSIA documents that are referenced in Annex 16, Volume IV. Specifically:

1. ICAO Document “*CORSIA Central Registry (CCR): Information and Data for the Implementation of CORSIA*” is an umbrella document that contains:
2. ICAO Document “*CORSIA Aeroplane Operator to State Attributions*” contains a list of aeroplane operators and the State to which they are attributed
  - Availability: Sixth edition published in December 2021 (*updated regularly*)
3. ICAO Document “*CORSIA 2020 Emissions*” contains the total 2020 CO<sub>2</sub> emissions to determine the first year in which a new entrant has offsetting requirements
  - Availability: First edition published in November 2021
4. ICAO Document “*CORSIA Annual Sector’s Growth Factor*”
  - Expected availability: by 31 October 2022 (to be updated annually)

5. ICAO Document “CORSA Central Registry (CCR): Information and Data for Transparency” contains:

- Part I: List of verification bodies accredited in each State
- Part II: Total average CO<sub>2</sub> emissions for 2019 and 2020 aggregated for all aeroplane operators on each State pair route
- Part III: Total annual CO<sub>2</sub> emissions aggregated for all aeroplane operators on each State pair (with identification of State pairs subject to offsetting requirements)
- Part IV: Information and data for each aeroplane operator
- Part V: Information and data on CORSA eligible fuels claimed
- Part VI: Offsetting requirements and emissions units cancelled (at State and global aggregate level for a specific compliance period)
  - Availability: Ninth edition of Part I published in December 2021 (*updated regularly*)
  - First edition of Part II published in December 2021

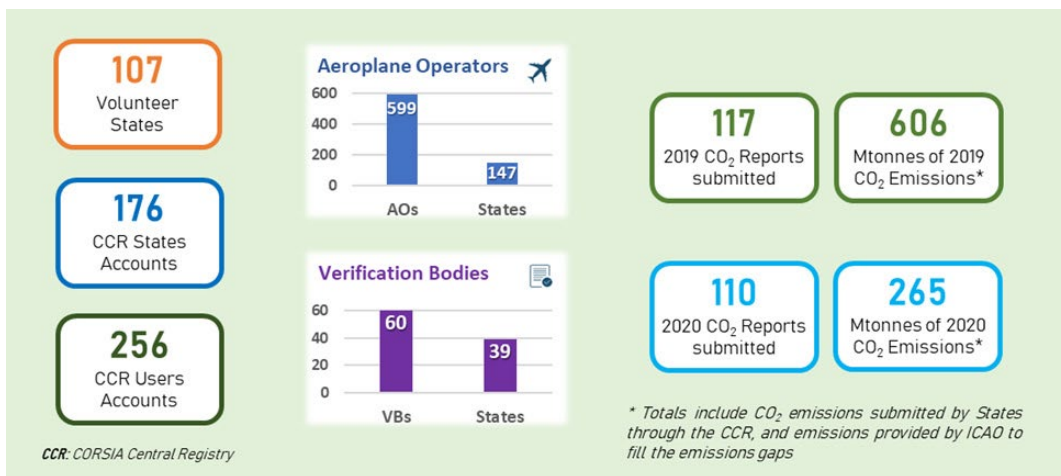
**Status of States’ Reporting Through the CCR**

ICAO Member States started using the CCR in June 2020. As of the first quarter of 2022, 176 States had access to their CCR accounts, with ICAO having created 176 CORSA Focal Points accounts and an additional 80 State User accounts (total 256 CCR users) on the CCR (see Figure 3 and Table 1 for permissions of CCR users). States have used the CCR to report the following:

- List of aeroplane operators attributed to each State for the years 2019<sup>4</sup>, 2020, and 2021;
- List of the verification bodies accredited in each State for the years 2019<sup>4</sup>, 2020, and 2021;
- CO<sub>2</sub> emissions on each State pair for the years 2019 and 2020 (see Table 3).

All five ICAO CORSA documents are published on the ICAO CORSA website<sup>3</sup>, following their approval by the ICAO Council.

Using the information submitted by States and, where necessary, data provided by ICAO for States that did not submit their aggregated Emissions Report in accordance with the timeline as defined in Appendix 1 to Annex 16, Volume IV, ICAO calculated the CORSA baseline CO<sub>2</sub> emissions (2019-2020) for international aviation. Specifically, ICAO published two datasets for average CO<sub>2</sub> emissions on each State pair:



**FIGURE 3:** Status of reporting through the CCR

<sup>3</sup> <https://www.icao.int/environmental-protection/CORSA/Pages/CCR.aspx>

<sup>4</sup> Given that the CCR came online in June 2020, ICAO made available an online spreadsheet for States to submit information on aeroplane operators and verification bodies for 2019. All 2019 reported information and data was transferred to the CCR in May 2020.

- Average emissions that apply to the CORSIA pilot phase (2021-2023), taking into account the ICAO Council decision in June 2020 that during the pilot phase, 2019 emissions shall be used for 2020 emissions; and
- Average emissions based on data for both 2019 emissions and 2020 emissions.

The fact that more than 97% of the total CO<sub>2</sub> emissions have been reported through the CCR for both year 2019 (606 million tonnes of CO<sub>2</sub> in total) and year 2020 (265 million tonnes of CO<sub>2</sub> in total) is testament of the determination of both States and aeroplane operators to ensure the successful implementation of CORSIA.

**TABLE 3:** Status of CO<sub>2</sub> emissions submissions for 2019 and 2020<sup>5</sup>

|   | 2019 | 2020 |
|---|------|------|
| Number of States that submitted data                    | 117  | 110  |
| Number of States for which ICAO provided data*          | 22   | 22   |
| Number of States with no reporting requirement**        | 54   | 61   |
| Total aggregated CO <sub>2</sub> emissions (in Mtonnes) | 606  | 265  |

\* In accordance with Annex 16, Volume IV, Part II, Chapter 2, 2.5.2.2. The methodology for ICAO-level gap filling can be found on the ICAO website.<sup>6</sup>

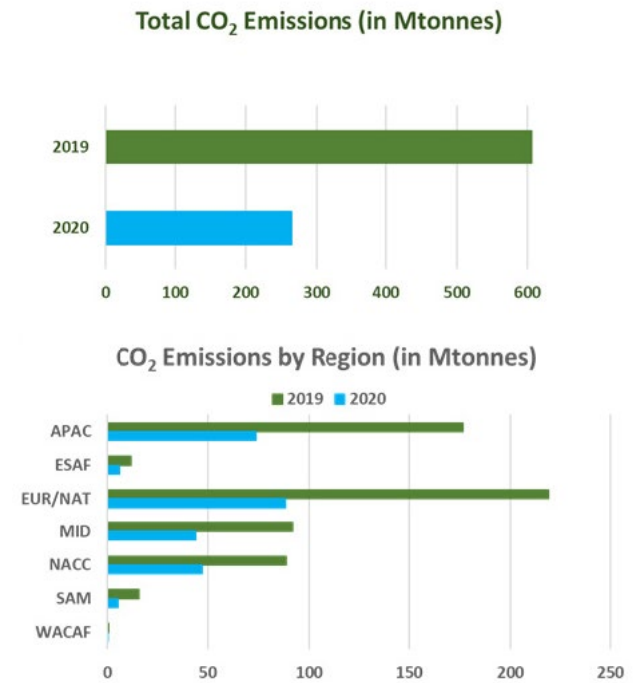
\*\* States without operators, and States with operators with international flights that emit less than 10 000 tonnes of CO<sub>2</sub> per year.

The CORSIA baseline CO<sub>2</sub> emissions were subject to the impact of COVID-19, with CO<sub>2</sub> emissions for year 2020 being 56% lower compared to those of 2019; such an impact can be observed for all ICAO regions (see Figure 4).

From 2022 onwards, ICAO will determine the Sector’s Growth Factor (SGF) for the previous year (based on the appropriate average baseline CO<sub>2</sub> emissions) and report back to States. States will use the SGF to determine the CO<sub>2</sub> offsetting requirements for each of their aeroplane operators. Using this information, aeroplane operators will purchase CORSIA eligible emission units and cancel them to fulfill their CO<sub>2</sub> offsetting requirements. Information on such cancellations will be submitted by States through the CCR starting with the pilot phase (due by 31 July 2025 as shown in Table 3).

## Final Remarks

The CCR is a vital part of the CORSIA MRV system assisting



**FIGURE 4:** CORSIA baseline CO<sub>2</sub> Emissions<sup>7</sup>

States to meet their reporting requirements under CORSIA. In the first few years of its operation, it has proved to be an extremely user-friendly tool and has been used by the majority of States to submit their CORSIA-specific information and data.

The CCR will remain in operation for the duration of the Scheme. In accordance with the timeline in Appendix 1 to Annex 16, Volume IV, it has to be in place at least until 31 July 2037, when the last piece of information is to be submitted by States for the year 2035. Over the coming years, ICAO will continue to maintain and, if necessary, improve the CCR to ensure that it continues to serve the needs of all States in the spirit of ICAO’s *No Country Left Behind* initiative.

5 CORSIA Newsletter – December 2021. Available at <https://www.icao.int/environmental-protection/CORSIA/Pages/CORSIANEWSLETTERS.aspx>

6 <https://www.icao.int/environmental-protection/CORSIA/Pages/CCR.aspx>

7 CORSIA Newsletter – December 2021. Available at <https://www.icao.int/environmental-protection/CORSIA/Pages/CORSIANEWSLETTERS.aspx>