



ICAO

*International Civil Aviation Organization***Third Meeting of the Surveillance Study Group (SURSG/3)**

(Hong Kong China, 22– 24 March 2023)

Agenda Item 5: Technical coordination on surveillance data sharing and demonstration

A JOINT EVENT FOR SURVEILLANCE DATA SHARING IN SWIM TRIAL AND SWIM OVER CRV DEMONSTRATION

(Presented by Hong Kong, China)

SUMMARY

This paper presents the proposal to combine the surveillance data sharing in SWIM trial under S3TIG and the SWIM Demonstration over CRV under SWIM TF as a joint event for States' consideration.

1. INTRODUCTION

1.1 The Surveillance Sharing in SWIM Trial Implementation Group (S3TIG) with kick-off meeting in Dec 2022 was established with the objective to support and promote the trial implementation of surveillance data sharing based on SWIM (“the Trial”) under the SURSG.

1.2 On the other hand, a SWIM Demonstration over CRV (“the Demo”) was planned to be hosted in Hong Kong China back in 2020 under SWIM TF, to demonstrate the operational benefits of using CRV to carry SWIM data, and the corresponding services envisaged as necessary or complementary to support implementation of SWIM in APAC region. Due to the COVID-19 pandemic, the demonstration was postponed until further notice.

1.3 With the recovery from the COVID-19 pandemic, it is opportune timing to consider the way forward for both events given so much commonality between the two events, physically, demonstration wise and objective wise (the goal to promote SWIM), it is considered beneficial to combine both events as a joint event with the considerations and advantages described in the following sections.

2. DISCUSSION**The Case for a Joint Event**

2.1 No mutual exclusivity from any of two events is seen in the joint event since simplistically, each individual event could be seen as the exchange of information of a particular kind (flight data or surveillance data). The combined event has the following advantages:

- a. Enriched contents and a more holistic demonstration instead of a demonstration dictated say to the exchange of surveillance data - participants would be able to appreciate the demonstration of exchange of multiple SWIM data types in a combined event.
- b. The combined event would be a forum to demonstrate a potential and interactive way of exchange of data with corresponding SWIM services such as publish-n-subscribe, governance and management and potential participation of stakeholders other than states and administrations.
- c. Obvious and substantial savings in logistics, costs and efforts in a combined event, which also gravitates the interests of stakeholders towards the interactiveness and broadness of aviation data that can be exchanged in SWIM.
- d. The combined event is in line with the contents of SURSG Study Report released in Feb 2022.
- e. The combined event would promote the implementation of SWIM in APAC.

CRV as the network infrastructure for the Trial

2.2 During the preparation of the Demo, a pseudo CRV connection was established connecting Thailand, Singapore and Hong Kong China. It may be feasible that a dedicated portion bandwidth of the operational CRV could be allocated for the Trial without affecting the normal operation of the CRV for the daily traffic being exchanged considering the throughput, usage pattern and the CRV bandwidth subscribed to by individual members. To quicker the establishment of the infrastructure for the Trial, temporary increase in CRV bandwidth is an option, the CRV provider is a possibility but subject to considerations by states and by PCCWG. Other means of connection (such as the Internet) to enable the participation in the Trial could also be explored to demonstrate alternative means of access to SWIM data by various stakeholders and the various interconnecting pathways and gateways that could exist. It should be emphasized that these are possibilities as S3TIG works on the details of Trial in terms of contents demonstrated and the infrastructure required for the Trial. The following are being considered for the Trial, with perhaps more aspects and services of the SWIM model to be demonstrated subject to the works of S3TIG:

State owned Enterprise Messaging Service (EMS) and Surveillance Central Data Processor (SCDP)

2.3 States owned EMS and EMS provided by SWIM service provider had been implemented in the Demo, which can be served as the fundamental system architecture for the Trial and speed up the setup process to include other S3TIG members. This setup is also in line with the hybrid model for surveillance data sharing as proposed in the Study Report of SURSG.

2.4 The SCDP as one of the services to be provided by SWIM service provider under the Trial can be integrated together with the planned SWIM data services (e.g. FIXM and IWXXM) in the Demo, which can enrich the types of SWIM services that can be consumed by the participants.

ATFM scenario

2.5 ATFM scenario, based on the ASEAN Demonstration, was refined to be used in the Trial, which is considered a suitable use case to demonstrate the operational benefits brought by SWIM. Coincidentally, the Tier 2 ADS-B data sharing as planned in the Trial is to support ATS applications which do not use the shared surveillance data for aircraft separation. ATFM scenario becomes a common scenario of the Trial and the Demo. With the addition of surveillance data sharing to the ATFM scenario, the overall impression of the use case will be enhanced.

Summary

- 2.6 In summary, the proposal on combining the two events can:-
- a) Save effort in preparing similar network and system infrastructure for the Trial;
 - b) Demonstrate data exchange of different throughput and examine such bandwidth requirement on CRV; and
 - c) Enhance user experience with more types of SWIM services.

3. ACTION BY THE MEETING

- 3.1 The meeting is invited to:
- a) note the information contained in this paper;
 - b) provide support to the proposal;
 - c) participate in the Trial; and
 - d) discuss any relevant matter as appropriate
